

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

Calculation: Flickering_Vestas_V162 Shadow receptor: 40940190018001 - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (240)
 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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	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 16:29	08:40 15:46
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	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 22:09	04:43 22:10	05:37 21:17	06:39 19:59	07:40 18:38	07:46 16:24	08:43 15:45
10	08:52 16:06	08:02 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:45 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:21	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:32 22:12	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 20:28	05:08 21:30	04:31 22:14	04:52 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	04:31 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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:10	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:34	07:59 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	04:58 21:57	05:57 20:53	06:59 19:32	08:01 18:13	08:08 16:06	08:54 15:44
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:02	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:05 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:34 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:32 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 18:15	08:21 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:48 20:53	04:48 21:51	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:23 16:53	08:57 15:48
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31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:27 18:44		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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		

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flickering_Vestas_V162_Stelpe1

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Vilandes 3-6

LV-1010 Riga

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Calculated:

04.04.2025 08:55/4.1.254

SHADOW - Calendar

Calculation: Flickering_Vestas_V162 Shadow receptor: Alpi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (220)
 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	08:21	07:17	06:54	05:38	04:41	04:35	05:21	06:23	07:23	07:29	08:31	
	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	08:19	07:14	06:52	05:35	04:39	04:35	05:23	06:25	07:25	07:31	08:33	
	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	08:17	07:12	06:49	05:33	04:38	04:36	05:24	06:27	07:27	07:33	08:34	
	15:55	16:55	17:57	20:03	21:06	22:02	22:15	21:30	20:15	18:54	16:37	15:48	
4	08:57	08:15	07:09	06:46	05:31	04:37	04:37	05:26	06:29	07:29	07:35	08:36	
	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	08:13	07:06	06:44	05:28	04:36	04:38	05:28	06:31	07:31	07:38	08:37	
	15:58	16:59	18:02	20:07	21:10	22:05	22:14	21:26	20:09	18:49	16:32	15:46	
6	08:56	08:11	07:04	06:41	05:26	04:35	04:39	05:30	06:33	07:33	07:40	08:39	
	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	08:09	07:01	06:38	05:24	04:35	04:40	05:32	06:35	07:35	07:42	08:41	
	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	08:07	06:59	06:36	05:22	04:34	04:42	05:34	06:37	07:37	07:44	08:42	
	16:03	17:06	18:08	20:14	21:16	22:08	22:11	21:19	20:01	18:41	16:26	15:44	
9	08:54	08:05	06:56	06:33	05:20	04:33	04:43	05:36	06:39	07:40	07:46	08:43	
	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	08:02	06:53	06:30	05:18	04:32	04:44	05:38	06:41	07:42	07:49	08:45	
	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	08:00	06:51	06:28	05:16	04:32	04:45	05:40	06:43	07:44	07:51	08:46	
	16:08	17:13	18:15	20:20	21:22	22:11	22:08	21:13	19:53	18:33	16:20	15:43	
12	08:51	07:58	06:48	06:25	05:13	04:31	04:47	05:42	06:45	07:46	07:53	08:47	
	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	07:56	06:45	06:22	05:11	04:31	04:48	05:44	06:47	07:48	07:55	08:48	
	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	07:53	06:43	06:20	05:09	04:31	04:49	05:46	06:49	07:50	07:57	08:49	
	16:13	17:20	18:21	20:26	21:28	22:14	22:05	21:05	19:45	18:25	16:14	15:43	
15	08:48	07:51	06:40	06:17	05:07	04:30	04:51	05:48	06:51	07:52	07:59	08:50	10:44 (10)
	16:15	17:22	18:23	20:28	21:30	22:14	22:03	21:03	19:43	18:22	16:13	15:43	3 10:47 (10)
16	08:47	07:49	06:37	06:15	05:06	04:30	04:52	05:50	06:53	07:54	08:01	08:51	10:44 (10)
	16:17	17:24	18:25	20:30	21:32	22:15	22:02	21:01	19:40	18:20	16:11	15:43	5 10:49 (10)
17	08:45	07:46	06:35	06:12	05:04	04:30	04:54	05:52	06:55	07:56	08:04	08:52	10:43 (10)
	16:19	17:26	18:27	20:32	21:34	22:15	22:01	20:58	19:37	18:17	16:09	15:43	7 10:50 (10)
18	08:44	07:44	06:32	06:10	05:02	04:30	04:56	05:54	06:57	07:58	08:06	08:53	10:44 (10)
	16:21	17:29	18:30	20:35	21:36	22:16	21:59	20:56	19:34	18:15	16:07	15:43	7 10:51 (10)
19	08:43	07:42	06:29	06:07	05:00	04:30	04:57	05:56	06:59	08:01	08:08	08:54	10:44 (10)
	16:23	17:31	18:32	20:37	21:38	22:16	21:58	20:53	19:32	18:12	16:06	15:43	8 10:52 (10)
20	08:41	07:39	06:27	06:04	04:58	04:30	04:59	05:58	07:01	08:03	08:10	08:55	10:44 (10)
	16:25	17:33	18:34	20:39	21:40	22:17	21:56	20:51	19:29	18:10	16:04	15:43	8 10:52 (10)
21	08:40	07:37	06:24	06:02	04:56	04:30	05:01	06:00	07:03	08:05	08:12	08:55	10:44 (10)
	16:27	17:35	18:36	20:41	21:41	22:17	21:55	20:48	19:26	18:07	16:03	15:44	9 10:53 (10)
22	08:38	07:34	06:21	05:59	04:55	04:30	05:02	06:03	07:05	08:07	08:14	08:56	10:44 (10)
	16:29	17:38	18:38	20:43	21:43	22:17	21:53	20:46	19:24	18:05	16:01	15:44	9 10:53 (10)
23	08:37	07:32	06:19	05:57	04:53	04:30	05:04	06:05	07:07	08:09	08:16	08:56	10:46 (10)
	16:31	17:40	18:40	20:45	21:45	22:17	21:51	20:43	19:21	18:02	16:00	15:45	8 10:54 (10)
24	08:35	07:29	06:16	05:54	04:52	04:31	05:06	06:07	07:09	08:11	08:18	08:57	10:46 (10)
	16:33	17:42	18:42	20:47	21:47	22:17	21:50	20:41	19:18	18:00	15:58	15:45	8 10:54 (10)
25	08:34	07:27	06:13	05:52	04:50	04:31	05:08	06:09	07:11	08:14	08:20	08:57	10:46 (10)
	16:35	17:44	18:44	20:49	21:48	22:17	21:48	20:38	19:15	17:58	15:57	15:46	8 10:54 (10)
26	08:32	07:24	06:10	05:50	04:48	04:31	05:09	06:11	07:13	08:16	08:22	08:57	10:47 (10)
	16:37	17:46	18:46	20:51	21:50	22:17	21:46	20:36	19:13	17:55	15:56	15:47	7 10:54 (10)
27	08:30	07:22	06:08	05:47	04:47	04:32	05:11	06:13	07:15	08:18	08:24	08:58	10:48 (10)
	16:39	17:49	18:48	20:53	21:52	22:17	21:44	20:33	19:10	17:53	15:54	15:47	6 10:54 (10)
28	08:29	07:19	06:05	05:45	04:46	04:32	05:13	06:15	07:17	08:20	08:25	08:58	10:50 (10)
	16:41	17:51	18:51	20:56	21:53	22:17	21:42	20:31	19:07	17:50	15:53	15:48	4 10:54 (10)
29	08:27		07:02	05:42	04:44	04:33	05:15	06:17	07:19	08:22	08:27	08:58	
	16:44		19:53	20:58	21:55	22:17	21:40	20:28	19:05	17:48	15:52	15:49	
30	08:25		07:00	05:40	04:43	04:34	05:17	06:19	07:21	08:24	08:29	08:58	
	16:46		19:55	21:00	21:56	22:16	21:38	20:25	19:02	17:46	15:51	15:50	
31	08:23		06:57		04:42		05:19	06:21		07:27		08:58	
	16:48		19:57		21:58		21:36	20:23		16:43		15:51	
Potential sun hours	234	266	366	426	509	530	530	470	385	323	247	215	
Total, worst case													97
Sun reduction													0,07
Oper. time red.													1,00
Wind dir. red.													1,00
Total reduction													0,07
Total, real													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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	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

Calculation: Flickering_Vestas_V162 Shadow receptor: Apseni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (188)
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	06:31 (3) 21:59	04:41 21:59	05:30 (4) 22:16	05:40 (4) 21:32	06:23 20:20	07:23 18:59	07:29 16:41	08:31 15:50
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6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	04:36 22:06	04:40 21:59	05:32 (4) 22:12	05:39 (4) 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
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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 21:59	05:33 (4) 22:11	05:38 (4) 21:19	06:37 20:01	07:37 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:04 17:09	06:56 18:10	06:33 20:16	05:20 21:18	04:34 22:09	04:43 21:59	05:34 (4) 22:10	05:38 (4) 21:17	06:39 20:54 (3)	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 21:59	05:34 (4) 22:09	05:38 (4) 21:15	06:42 (3) 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 21:59	05:35 (4) 22:08	05:38 (4) 21:12	06:40 (3) 19:53	07:44 18:33	07:50 16:20	08:46 15:44
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 21:59	05:35 (4) 22:07	05:38 (4) 21:10	06:39 (3) 19:51	07:46 18:28	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 21:59	05:36 (4) 22:06	05:38 (4) 21:08	06:38 (3) 19:48	07:48 18:28	07:55 16:17	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 21:59	05:37 (4) 22:04	05:37 (4) 21:05	06:37 (3) 19:45	07:50 18:25	07:57 16:15	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	04:31 22:14	04:51 21:59	05:38 (4) 22:03	05:38 (4) 21:03	06:36 (3) 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 22:14	04:53 21:59	05:38 (4) 22:02	05:38 (4) 21:01	06:36 (3) 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 21:59	05:38 (4) 22:00	05:38 (4) 20:58	06:36 (3) 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	05:39 (4) 21:59	05:38 (4) 20:56	06:36 (3) 19:34	07:58 18:15	08:05 16:08	08:53 15:43
19	08:42 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:37	04:30 22:16	04:58 21:59	05:39 (4) 21:57	05:38 (4) 20:53	06:36 (3) 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	04:59 21:39	04:30 22:16	04:59 21:59	05:40 (4) 21:56	05:38 (4) 20:51	06:36 (3) 19:29	08:03 18:10	08:10 16:04	08:54 15:44
21	08:40 16:27	07:37 17:36	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:17	05:01 21:59	05:40 (4) 21:54	05:39 (4) 20:48	06:36 (3) 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 21:59	05:40 (4) 21:53	05:39 (4) 20:46	06:37 (3) 19:24	08:07 18:05	08:14 16:01	08:56 15:45
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 21:59	05:40 (4) 21:51	05:40 (4) 20:43	06:36 (3) 19:21	08:09 18:03	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 21:59	05:41 (4) 21:49	05:41 (4) 20:41	06:37 (3) 19:18	08:11 18:00	08:18 15:59	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:59	05:40 (4) 21:47	05:43 (4) 20:38	06:39 (3) 19:15	08:09 17:58	08:19 15:57	08:57 15:46
26	08:32 16:37	07:24 17:47	06:11 18:46	05:50 20:51	04:49 21:50	04:32 22:17	05:10 21:59	05:41 (4) 21:46	05:45 (4) 20:36	06:42 (3) 19:13	08:07 17:51	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	05:12 21:59	05:40 (4) 21:44	05:46 (4) 20:33	06:49 (3) 19:10	08:08 17:48	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 21:59	05:40 (4) 21:42	05:48 (4) 20:30	06:49 (3) 19:07	08:09 17:20	08:25 15:53	08:57 15:49
29	08:27 16:44	07:02 17:53	05:43 19:00	05:43 20:57	04:45 21:55	04:34 22:16	05:15 21:59	05:40 (4) 21:40	05:50 (4) 20:28	06:49 (3) 19:05	08:10 17:22	08:27 15:52	08:57 15:50
30	08:25 16:46	07:00 17:55	05:40 19:00	05:40 21:00	04:43 21:56	04:34 22:16	05:17 21:59	05:40 (4) 21:38	05:52 (4) 20:25	06:19 19:02	08:11 17:24	08:29 15:51	08:57 15:51
31	08:23 16:48	06:57 17:57	05:37 19:07	05:37 21:00	04:42 21:58	04:34 22:16	05:19 21:59	05:40 (4) 21:36	05:52 (4) 20:23	06:21 19:02	08:12 17:26	08:30 15:51	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216	
Total, worst case				290	353	357	484	344					
Sun reduction				0,47	0,59	0,57	0,48	0,51					
Oper. time red.				1,00	1,00	1,00	1,00	1,00					
Wind dir. red.				1,00	1,00	1,00	1,00	1,00					
Total reduction				0,47	0,59	0,57	0,48	0,51					
Total, real				135	207	204	231	175					

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Atputas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (230)
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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	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 16:29	08:40 15:46
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	07:38 18:41	07:44 16:26	08:42 15:45
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10	08:52 16:06	08:02 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:45 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:32 22:12	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 20:28	05:08 21:30	04:31 22:14	04:52 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	04:31 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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:10	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	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	04:58 21:57	05:57 20:53	06:59 19:32	08:01 18:13	08:08 16:06	08:54 15:44
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:02	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:34 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:32 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:13 16:58	08:20 15:57	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 16:55	08:21 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:48 20:53	04:48 21:51	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 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	08:20 16:51	08:25 15:54	08:57 15:49
29	08:27 16:44	07:19 19:53	06:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 16:48	08:27 15:52	08:57 15:50
30	08:25 16:46	07:00 19:55	05:50 21:00	05:40 21:00	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 16:46	08:29 15:51	08:57 15:51
31	08:23 16:48	06:57 19:57	05:42 21:00	05:35 21:00	04:42 21:58	04:32 22:16	05:19 21:36	06:21 20:23	07:27 16:44	08:31 15:52	08:36 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Audzespieduri - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (204)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	21:10 (3) 21:20 (3)	04:35 21:35 (3)	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:03	04:40 22:00	21:10 (3) 21:21 (3)	04:36 21:34 (3)	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:39 22:02	21:10 (3) 21:22 (3)	04:37 22:14	05:25 21:30	06:27 20:14	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 20:05	05:31 21:08	04:38 22:03	21:10 (3) 21:24 (3)	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:35 15:47
5	08:55 15:58	08:13 16:59	07:06 18:02	06:44 20:07	05:29 21:10	04:37 22:04	21:10 (3) 21:25 (3)	04:39 22:13	05:29 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:47
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7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	21:09 (3) 21:27 (3)	04:41 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
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10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	21:09 (3) 21:30 (3)	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:11	21:09 (3) 21:30 (3)	04:46 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:10	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	04:32 22:11	21:09 (3) 21:31 (3)	04:47 22:06	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:12 21:26	04:31 22:12	21:10 (3) 21:31 (3)	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:10 21:28	04:31 22:13	21:10 (3) 21:32 (3)	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:15	08:49 15:43
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17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	21:10 (3) 21:32 (3)	04:54 22:00	05:52 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 18:29	06:10 20:34	05:02 21:35	04:30 22:15	21:10 (3) 21:32 (3)	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:08	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 22:16	21:10 (3) 21:32 (3)	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:05 20:38	04:58 21:39	04:30 22:16	21:11 (3) 21:32 (3)	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:44
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:57 21:41	04:30 22:16	21:12 (3) 21:33 (3)	05:01 21:54	06:01 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	21:12 (3) 21:33 (3)	05:02 21:52	06:03 20:46	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:31 22:17	21:11 (3) 21:33 (3)	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:02	08:15 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	21:12 (3) 21:34 (3)	05:06 21:49	06:07 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	21:12 (3) 21:34 (3)	05:08 21:47	06:09 20:38	07:11 19:15	07:13 16:58	08:19 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	21:12 (3) 21:34 (3)	05:10 21:45	06:11 20:35	07:13 19:13	07:15 16:55	08:21 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 21:51	04:32 22:17	21:13 (3) 21:34 (3)	05:11 21:44	06:13 20:33	07:15 19:10	07:18 16:53	08:23 15:54	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	21:12 (3) 21:34 (3)	05:13 21:42	06:15 20:30	07:17 19:07	07:20 16:50	08:25 15:53	08:57 15:49
29	08:26 16:44	07:02 19:52	05:42 20:57	04:44 21:54	04:44 21:53	04:33 22:16	21:13 (3) 21:34 (3)	05:15 21:40	06:17 20:28	07:19 19:04	07:22 16:48	08:27 15:52	08:57 15:50
30	08:24 16:46	07:00 19:55	05:40 20:59	04:43 21:56	04:43 21:54	04:34 22:16	21:14 (3) 21:35 (3)	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	06:57 19:57	05:42 21:57	04:42 21:57	04:42 21:57	04:33 21:57	21:11 (3) 21:19 (3)	05:19 21:36	06:21 20:22	07:26 16:44	07:26 16:44	08:57 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216	
Total, worst case					18	588	203						
Sun reduction					0,59	0,57	0,48						
Oper. time red.					1,00	1,00	1,00						
Wind dir. red.					1,00	1,00	1,00						
Total reduction					0,59	0,57	0,48						
Total, real					11	335	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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	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

Calculation: Flickering_Vestas_V162 Shadow receptor: Baloži - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (192)
 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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:35 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07	04:40 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:11	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:56 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:07	08:19 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	04:31 22:17	05:09 21:45	06:10 20:35	07:13 19:12	08:15 18:05	08:21 15:56	08:57 15:47
27	08:30 16:39	07:22 17:48	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	08:18 18:02	08:23 16:53	08:57 15:48
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:00	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:04	08:27 16:48	08:57 15:49
30	08:24 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:05	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:07		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Beikapi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (194)
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 21:01	19:21 (3) 20:12 (6)
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:04	21:59 20:58 (4)
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	22:00 20:57 (4)
4	08:56 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	22:02 20:57 (4)
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	05:29 21:10	22:03 20:56 (4)
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:26 21:12	22:04 20:56 (4)
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 19:30 (3)	22:05 20:56 (4)
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 19:33 (3)	22:07 20:56 (4)
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 19:38 (3)	22:08 20:55 (4)
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	05:18 19:40 (3)	22:09 20:56 (4)
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 19:43 (3)	22:10 20:56 (4)
12	08:50 16:10	07:58 17:15	06:48 18:17	06:25 20:22	05:14 19:44 (3)	22:11 20:56 (4)
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:12 19:44 (3)	22:12 20:56 (4)
14	08:48 16:13	07:53 17:20	06:43 18:21	06:20 20:26	05:10 19:45 (3)	22:13 20:56 (4)
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 19:46 (3)	22:14 20:56 (4)
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 19:46 (3)	22:15 20:56 (4)
17	08:45 16:19	07:46 17:26	06:35 18:27	06:12 20:32	05:04 19:45 (3)	22:16 20:56 (4)
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	05:02 19:46 (3)	22:17 20:56 (4)
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 20:06 (6)	22:18 20:56 (4)
20	08:41 16:25	07:39 17:33	06:26 18:34	06:05 20:38	04:58 20:08 (6)	22:19 20:56 (4)
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:57 20:09 (6)	22:20 20:56 (4)
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	04:55 20:12 (6)	22:21 20:56 (4)
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 20:14 (6)	22:22 20:56 (4)
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 20:47	04:52 20:15 (6)	22:23 20:56 (4)
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 20:16 (6)	22:24 20:56 (4)
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	04:49 20:16 (6)	22:25 20:56 (4)
27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	04:47 20:15 (6)	22:26 20:56 (4)
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 20:15 (6)	22:27 20:56 (4)
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 20:14 (6)	22:28 20:56 (4)
30	08:25 16:46		07:00 19:55	05:40 20:59	04:43 20:13 (6)	22:29 20:56 (4)
31	08:23 16:48		06:57 19:57		04:42 21:57	22:30 20:56 (4)
Potential sun hours	235	266	366	426	508	529
Total, worst case				847	89	811
Sun reduction				0,47	0,59	0,57
Oper. time red.				1,00	1,00	1,00
Wind dir. red.				1,00	1,00	1,00
Total reduction				0,47	0,59	0,57
Total, real				395	52	462

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Beikapi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (194)
Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

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		20:59 (4)	05:21			06:23		19:15 (3)	07:23	07:29	08:30
	22:15	28	21:27 (4)	21:34			20:20	27	19:42 (3)	18:59	16:41	15:50
2	04:36		21:00 (4)	05:23			06:25		19:17 (3)	07:25	07:31	08:32
	22:15	27	21:27 (4)	21:32			20:17	23	19:40 (3)	18:56	16:39	15:49
3	04:37		21:01 (4)	05:25			06:27		19:18 (3)	07:27	07:33	08:34
	22:14	26	21:27 (4)	21:30			20:15	20	19:38 (3)	18:54	16:37	15:48
4	04:37		21:01 (4)	05:27			06:29		19:20 (3)	07:29	07:35	08:35
	22:14	26	21:27 (4)	21:28			20:12	15	19:35 (3)	18:51	16:35	15:47
5	04:38		21:02 (4)	05:28			06:31		19:26 (3)	07:31	07:37	08:37
	22:13	25	21:27 (4)	21:26			20:09	3	19:29 (3)	18:48	16:32	15:47
6	04:40		21:02 (4)	05:30			06:33			07:33	07:39	08:39
	22:12	25	21:27 (4)	21:23			20:07			18:46	16:30	15:46
7	04:41		21:03 (4)	05:32			06:35			07:35	07:42	08:40
	22:12	24	21:27 (4)	21:21			20:04			18:43	16:28	15:45
8	04:42		21:04 (4)	05:34			06:37			07:37	07:44	08:41
	22:11	22	21:26 (4)	21:19			20:01			18:41	16:26	15:45
9	04:43		21:04 (4)	05:36			06:39			07:39	07:46	08:43
	22:10	22	21:26 (4)	21:17			19:59			18:38	16:24	15:44
10	04:44		21:05 (4)	05:38			06:41			07:41	07:48	08:44
	22:09	20	21:25 (4)	21:14	9	20:18 (6)	19:56			18:35	16:22	15:44
11	04:46		21:05 (4)	05:40			06:43			07:44	07:50	08:45
	22:08	20	21:25 (4)	21:12	13	20:20 (6)	19:53			18:33	16:20	15:43
12	04:47		21:07 (4)	05:42			19:29 (3)			07:46	07:52	08:47
	22:07	18	21:25 (4)	21:10	27	20:21 (6)	19:50			18:30	16:18	15:43
13	04:48		21:08 (4)	05:44			19:25 (3)			07:48	07:55	08:48
	22:05	15	21:23 (4)	21:08	34	20:21 (6)	19:48			18:28	16:16	15:43
14	04:50		21:09 (4)	05:46			19:23 (3)			07:50	07:57	08:49
	22:04	13	21:22 (4)	21:05	40	20:22 (6)	19:45			18:25	16:15	15:43
15	04:51		21:12 (4)	05:48			19:21 (3)			07:52	07:59	08:50
	22:03	9	21:21 (4)	21:03	44	20:22 (6)	19:42			18:22	16:13	15:43
16	04:53			05:50			19:20 (3)			07:54	08:01	08:51
	22:02			21:00	47	20:22 (6)	19:40			18:20	16:11	15:43
17	04:54			05:52			19:19 (3)			07:56	08:03	08:52
	22:00			20:58	48	20:22 (6)	19:37			18:17	16:09	15:43
18	04:56			05:54			19:18 (3)			07:58	08:05	08:53
	21:59			20:55	50	20:22 (6)	19:34			18:15	16:08	15:43
19	04:57			05:56			19:17 (3)			08:00	08:07	08:53
	21:57			20:53	52	20:22 (6)	19:32			18:12	16:06	15:43
20	04:59			05:58			19:17 (3)			08:03	08:09	08:54
	21:56			20:51	49	20:19 (6)	19:29			18:10	16:04	15:43
21	05:01			06:01			19:15 (3)			08:05	08:11	08:55
	21:54			20:48	47	20:16 (6)	19:26			18:07	16:03	15:44
22	05:02			06:03			19:14 (3)			08:07	08:13	08:55
	21:52			20:46	46	20:14 (6)	19:23			18:05	16:01	15:44
23	05:04			06:05			19:14 (3)			08:09	08:15	08:56
	21:51			20:43	43	20:12 (6)	19:21			18:02	16:00	15:45
24	05:06			06:07			19:14 (3)			08:11	08:17	08:56
	21:49			20:40	37	20:09 (6)	19:18			18:00	15:58	15:45
25	05:08			06:09			19:14 (3)			07:13	08:19	08:57
	21:47			20:38	34	19:48 (3)	19:15			16:58	15:57	15:46
26	05:10			06:11			19:14 (3)			07:15	08:21	08:57
	21:46			20:35	34	19:48 (3)	19:13			16:55	15:56	15:47
27	05:11			06:13			19:14 (3)			07:18	08:23	08:57
	21:44			20:33	33	19:47 (3)	19:10			16:53	15:54	15:48
28	05:13			06:15			19:14 (3)			07:20	08:25	08:57
	21:42			20:30	33	19:47 (3)	19:07			16:50	15:53	15:49
29	05:15			06:17			19:14 (3)			07:22	08:27	08:57
	21:40			20:28	32	19:46 (3)	19:05			16:48	15:52	15:49
30	05:17			06:19			19:15 (3)			07:24	08:29	08:57
	21:38			20:25	30	19:45 (3)	19:02			16:46	15:51	15:51
31	05:19			06:21			19:14 (3)			07:26		08:57
	21:36			20:22	29	19:43 (3)				16:44		15:52
Potential sun hours	530			470			385			323	247	216
Total, worst case		320			811		88					
Sun reduction		0,48			0,51		0,46					
Oper. time red.		1,00			1,00		1,00					
Wind dir. red.		1,00			1,00		1,00					
Total reduction		0,48			0,51		0,46					
Total, real		153			413		41					

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Bikernieki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (212)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:55 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 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 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:41 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:32 22:11	04:47 22:06	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 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 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:57 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 17:57	08:19 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 21:45	06:11 20:35	07:13 19:13	08:15 17:55	08:21 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 21:51	04:32 22:17	05:11 21:44	06:13 20:33	07:15 19:10	08:18 17:53	08:23 15:54	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 17:50	08:25 15:53	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 17:48	08:27 15:52	08:57 15:49
30	08:24 16:46		07:00 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 17:46	08:29 15:51	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 17:43		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Buži - Shadow Receptor: $1,0 \times 1,0$ Azimuth: $3,1^\circ$ Slope: $90,0^\circ$ (226)
 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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	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 16:29	08:40 15:46
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	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	06:31 20:18	05:18 21:20	04:33 22:10	04:45 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:32 22:12	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 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	04:31 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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	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	04:58 21:57	05:57 20:53	06:59 19:32	08:01 18:13	08:08 16:06	08:54 15:44
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:34 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:32 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 18:15	08:21 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 20:53	04:48 21:51	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:23 16:53	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	08:20 18:05	08:25 16:51	08:57 15:49
29	08:27 16:44	07:19 19:53	06:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:57 15:50
30	08:25 16:46	07:00 19:55	05:50 21:00	05:40 21:00	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:05	08:29 16:46	08:57 15:51
31	08:23 16:48	06:57 19:57	05:42 21:00	05:35 21:00	04:42 21:58	04:32 22:16	05:19 21:36	06:21 20:23	07:23 19:02	08:26 18:05	08:31 16:44	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Berzes - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (170)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:52	07:14 17:55	06:51 20:01	05:35 21:04	04:39 22:00	04:35 22:15	05:22 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:34	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:35 22:05	04:39 22:12	05:30 21:23	06:33 20:07	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 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 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:42 15:44
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:46 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:12	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:52 22:02	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:51	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:40 16:27	07:36 17:35	06:24 18:36	06:02 20:41	04:56 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:46	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 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	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:05	08:19 15:57	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:49 20:51	04:48 21:50	04:31 22:17	05:09 21:46	06:10 20:35	07:13 19:13	08:15 18:05	08:21 15:55	08:57 15:47
27	08:30 16:39	07:22 17:48	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17	05:11 21:44	06:12 20:33	07:15 19:10	08:18 18:02	08:23 16:53	08:57 15:47
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:00	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:04	08:27 16:48	08:57 15:49
30	08:25 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:00	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:00		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Duburi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (202)
 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	19:17 (13) 21:01	04:41 21:59
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	19:17 (13) 21:04	04:39 22:00
3	08:57 15:55	08:17 16:55	07:11 17:57	06:49 20:03	19:16 (13) 21:06	04:38 22:02
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	19:15 (13) 21:08	04:37 22:03
5	08:56 15:58	08:13 16:59	16:23 (5) 18:02	06:43 20:07	19:16 (13) 21:10	04:36 22:04
6	08:55 16:00	08:11 17:01	16:20 (5) 18:04	06:41 20:09	19:16 (13) 21:12	04:35 22:06
7	08:55 16:01	08:09 17:04	16:20 (5) 18:06	06:38 20:11	19:17 (13) 21:14	04:35 22:07
8	08:54 16:03	08:07 17:06	16:19 (5) 18:08	06:36 20:13	19:18 (13) 21:16	04:34 22:08
9	08:53 16:04	08:04 17:08	16:18 (5) 18:10	06:33 20:15	19:20 (13) 21:18	04:33 22:09
10	08:52 16:06	08:02 17:11	16:18 (5) 18:12	06:30 20:18	05:18 21:20	04:33 22:10
11	08:51 16:08	08:00 17:13	16:19 (5) 18:15	06:28 20:20	05:15 21:22	04:32 22:11
12	08:51 16:09	07:58 17:15	16:18 (5) 18:17	06:25 20:22	05:13 21:24	04:31 22:12
13	08:50 16:11	07:55 17:17	16:19 (5) 18:19	06:22 20:24	05:11 21:26	04:31 22:12
14	08:49 16:13	07:53 17:20	16:19 (5) 18:21	06:20 20:26	05:09 21:28	04:31 22:13
15	08:47 16:15	07:51 17:22	16:20 (5) 18:23	06:17 20:28	05:07 21:30	04:30 22:14
16	08:46 16:17	07:49 17:24	16:20 (5) 18:25	06:15 20:30	05:06 21:32	04:30 22:14
17	08:45 16:19	07:46 17:26	16:22 (5) 18:27	06:12 20:32	05:04 21:34	04:30 22:15
18	08:44 16:21	07:44 17:29	16:25 (5) 18:29	06:09 20:34	05:02 21:36	04:30 22:16
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 22:16
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:56 21:41	04:30 22:17
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17
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
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	04:48 21:50	04:31 22:17
27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:32 22:17
29	08:26 16:44		07:02 19:52	05:42 19:22 (13) 20:57	04:44 21:55	04:33 22:16
30	08:25 16:46		07:00 19:55	19:24 (13) 20:59	04:43 21:56	04:34 22:16
31	08:23 16:48		06:57 19:57	19:18 (13) 20:59	04:42 21:58	04:42 22:16
Potential sun hours	235	266	366	426	508	530
Total, worst case		197	18	130		
Sun reduction		0,19	0,40	0,47		
Oper. time red.		1,00	1,00	1,00		
Wind dir. red.		1,00	1,00	1,00		
Total reduction		0,19	0,40	0,47		
Total, real		38	7	61		

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Duburi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (202)
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 20:20	07:23 18:59	07:29 16:41	15:48 (5) 15:50
2	04:35 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	15:48 (5) 15:49
3	04:36 22:14	05:24 21:30	06:27 20:15	19:18 (13) 19:24 (13)	07:27 16:37	15:49 (5) 15:48
4	04:37 22:14	05:26 21:28	06:29 20:12	19:15 (13) 19:26 (13)	07:29 16:35	15:49 (5) 15:47
5	04:38 22:13	05:28 21:26	06:31 20:09	19:13 (13) 19:28 (13)	07:31 16:32	15:51 (5) 15:46
6	04:39 22:12	05:30 21:23	06:33 20:07	19:12 (13) 19:28 (13)	07:33 16:30	15:53 (5) 15:46
7	04:40 22:12	05:32 21:21	06:35 20:04	19:11 (13) 19:29 (13)	07:35 16:28	15:55 (5) 15:45
8	04:42 22:11	05:34 21:19	06:37 20:01	19:10 (13) 19:29 (13)	07:37 16:26	15:47 15:44
9	04:43 22:10	05:36 21:17	06:39 19:59	19:10 (13) 19:28 (13)	07:39 16:24	15:47 15:44
10	04:44 22:09	05:38 21:15	06:41 19:56	19:10 (13) 19:26 (13)	07:41 16:22	15:44 15:44
11	04:45 22:08	05:40 21:12	06:43 19:53	19:10 (13) 19:23 (13)	07:44 16:20	15:44 15:43
12	04:47 22:07	05:42 21:10	06:45 19:50	19:10 (13) 19:21 (13)	07:46 16:18	15:43 15:43
13	04:48 22:06	05:44 21:08	06:47 19:48	19:10 (13) 19:17 (13)	07:48 16:16	15:43 15:43
14	04:50 22:04	05:46 21:05	06:49 19:45	19:12 (13) 19:14 (13)	07:50 16:14	15:43 15:43
15	04:51 22:03	05:48 21:03	06:51 19:42	18:25 18:22	07:52 16:13	15:43 15:43
16	04:52 22:02	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	15:43 15:43
17	04:54 22:00	05:52 20:58	06:55 19:37	07:56 18:17	08:03 16:09	15:43 15:43
18	04:56 21:59	05:54 20:56	06:57 19:34	07:58 18:15	08:05 16:07	15:43 15:43
19	04:57 21:57	05:56 20:53	06:59 19:32	08:00 18:12	08:07 16:06	15:43 15:43
20	04:59 21:56	05:58 20:51	07:01 19:29	08:03 18:10	08:09 16:04	15:43 15:43
21	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	15:43 15:44
22	05:02 21:53	06:02 20:46	07:05 19:23	08:07 18:05	08:14 16:01	15:43 15:44
23	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:16 16:00	15:43 15:45
24	05:06 21:49	06:06 20:41	07:09 19:18	08:11 18:00	16:54 (5) 17:02 (5)	15:43 15:45
25	05:08 21:47	06:08 20:38	07:11 19:15	07:13 16:57	15:51 (5) 16:04 (5)	15:43 15:46
26	05:09 21:46	06:11 20:35	07:13 19:13	07:15 16:55	15:50 (5) 16:06 (5)	15:43 15:47
27	05:11 21:44	06:13 20:33	07:15 19:10	07:18 16:53	15:49 (5) 16:06 (5)	15:43 15:47
28	05:13 21:42	06:15 20:30	07:17 19:07	07:20 16:50	15:48 (5) 16:07 (5)	15:43 15:48
29	05:15 21:40	06:17 20:28	07:19 19:04	07:22 16:48	15:48 (5) 16:07 (5)	15:43 15:49
30	05:17 21:38	06:19 20:25	07:21 19:02	07:24 16:46	15:47 (5) 16:07 (5)	15:43 15:50
31	05:19 21:36	06:21 20:22		07:26 16:43	15:48 (5) 16:08 (5)	15:43 15:51
Potential sun hours	530	470	385	323	247	215
Total, worst case			152	132	68	
Sun reduction			0,46	0,28	0,08	
Oper. time red.			1,00	1,00	1,00	
Wind dir. red.			1,00	1,00	1,00	
Total reduction			0,46	0,28	0,08	
Total, real			70	37	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)

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Dzeni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (171)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07	04:40 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:11	04:47 22:06	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
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29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:00	08:27 16:48	08:57 15:49
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31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:00		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Dzilnas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (165)
 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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:05	04:38 22:02	04:36 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:55 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:25	06:31 20:09	07:31 18:48	07:37 16:32	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 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:41 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
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10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:32 22:11	04:47 22:06	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
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20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
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22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:16	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 17:57	08:19 15:57	08:57 15:46
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31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 17:43		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Dzintari - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (209)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:05	04:38 22:02	04:36 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
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31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:00		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
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Wind dir. red.												
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Total, real												

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Dzirnaukieki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (224)
 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	08:21	07:17	06:55	05:38	04:41	04:35	05:21	06:23	07:23	07:29	08:31
	15:53	16:51	17:53	19:59	21:02	21:59	22:16	21:34	20:20	18:59	16:42	15:50
2	08:57	08:19	07:14	06:52	05:36	04:40	04:36	05:23	06:25	07:25	07:31	08:32
	15:55	16:53	17:55	20:01	21:04	22:00	22:15	21:32	20:17	18:57	16:39	15:49
3	08:57	08:17	07:12	06:49	05:33	04:39	04:37	05:25	06:27	07:27	07:33	08:34
	15:56	16:55	17:58	20:03	21:06	22:02	22:15	21:30	20:15	18:54	16:37	15:48
4	08:56	08:15	07:09	06:46	05:31	04:38	04:38	05:27	06:29	07:29	07:35	08:36
	15:57	16:57	18:00	20:05	21:08	22:03	22:14	21:28	20:12	18:51	16:35	15:48
5	08:56	08:13	07:06	06:44	05:29	04:37	04:39	05:29	06:31	07:31	07:38	08:37
	15:59	17:00	18:02	20:07	21:10	22:04	22:13	21:26	20:09	18:49	16:33	15:47
6	08:55	08:11	07:04	06:41	05:27	04:36	04:40	05:31	06:33	07:33	07:40	08:39
	16:00	17:02	18:04	20:09	21:12	22:06	22:13	21:24	20:07	18:46	16:31	15:46
7	08:55	08:09	07:01	06:39	05:24	04:35	04:41	05:33	06:35	07:35	07:42	08:40
	16:02	17:04	18:06	20:12	21:14	22:07	22:12	21:21	20:04	18:43	16:29	15:46
8	08:54	08:07	06:59	06:36	05:22	04:34	04:42	05:35	06:37	07:38	07:44	08:42
	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	08:05	06:56	06:33	05:20	04:34	04:43	05:37	06:39	07:40	07:46	08:43
	16:05	17:09	18:11	20:16	21:18	22:09	22:10	21:17	19:59	18:38	16:24	15:45
10	08:52	08:02	06:53	06:31	05:18	04:33	04:45	05:39	06:41	07:42	07:48	08:44
	16:06	17:11	18:13	20:18	21:20	22:10	22:09	21:15	19:56	18:36	16:22	15:44
11	08:52	08:00	06:51	06:28	05:16	04:32	04:46	05:41	06:43	07:44	07:51	08:46
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12	08:51	07:58	06:48	06:25	05:14	04:32	04:47	05:43	06:45	07:46	07:53	08:47
	16:10	17:15	18:17	20:22	21:24	22:12	22:07	21:10	19:51	18:30	16:19	15:43
13	08:50	07:56	06:45	06:23	05:12	04:32	04:49	05:45	06:47	07:48	07:55	08:48
	16:12	17:18	18:19	20:24	21:26	22:12	22:06	21:08	19:48	18:28	16:17	15:43
14	08:49	07:53	06:43	06:20	05:10	04:31	04:50	05:47	06:49	07:50	07:57	08:49
	16:13	17:20	18:21	20:26	21:28	22:13	22:04	21:05	19:45	18:25	16:15	15:43
15	08:48	07:51	06:40	06:18	05:08	04:31	04:52	05:49	06:51	07:52	07:59	08:50
	16:15	17:22	18:23	20:28	21:30	22:14	22:03	21:03	19:43	18:23	16:13	15:43
16	08:46	07:49	06:37	06:15	05:06	04:31	04:53	05:51	06:53	07:54	08:01	08:51
	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	07:46	06:35	06:12	05:04	04:30	04:55	05:53	06:55	07:56	08:03	08:52
	16:19	17:27	18:28	20:32	21:34	22:15	22:00	20:58	19:37	18:18	16:10	15:43
18	08:44	07:44	06:32	06:10	05:02	04:30	04:56	05:55	06:57	07:59	08:05	08:53
	16:21	17:29	18:30	20:35	21:36	22:16	21:59	20:56	19:35	18:15	16:08	15:43
19	08:43	07:42	06:29	06:07	05:00	04:30	04:58	05:57	06:59	08:01	08:08	08:54
	16:23	17:31	18:32	20:37	21:38	22:16	21:57	20:53	19:32	18:13	16:06	15:44
20	08:41	07:39	06:27	06:05	04:59	04:30	04:59	05:59	07:01	08:03	08:10	08:54
	16:25	17:33	18:34	20:39	21:39	22:16	21:56	20:51	19:29	18:10	16:05	15:44
21	08:40	07:37	06:24	06:02	04:57	04:30	05:01	06:01	07:03	08:05	08:12	08:55
	16:27	17:36	18:36	20:41	21:41	22:17	21:54	20:48	19:26	18:08	16:03	15:44
22	08:38	07:34	06:21	06:00	04:55	04:31	05:03	06:03	07:05	08:07	08:14	08:56
	16:29	17:38	18:38	20:43	21:43	22:17	21:53	20:46	19:24	18:05	16:02	15:45
23	08:37	07:32	06:19	05:57	04:54	04:31	05:05	06:05	07:07	08:09	08:16	08:56
	16:31	17:40	18:40	20:45	21:45	22:17	21:51	20:43	19:21	18:03	16:00	15:45
24	08:35	07:29	06:16	05:55	04:52	04:31	05:06	06:07	07:09	08:11	08:18	08:56
	16:33	17:42	18:42	20:47	21:46	22:17	21:49	20:41	19:18	18:00	15:59	15:46
25	08:34	07:27	06:13	05:52	04:50	04:32	05:08	06:09	07:11	08:14	08:20	08:57
	16:35	17:44	18:44	20:49	21:48	22:17	21:48	20:38	19:16	17:58	15:57	15:46
26	08:32	07:24	06:11	05:50	04:49	04:32	05:10	06:11	07:13	08:16	08:21	08:57
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27	08:30	07:22	06:08	05:48	04:48	04:32	05:12	06:13	07:15	08:18	08:23	08:57
	16:40	17:49	18:49	20:53	21:51	22:17	21:44	20:33	19:10	17:53	15:55	15:48
28	08:28	07:19	06:05	05:45	04:46	04:33	05:14	06:15	07:17	08:20	08:25	08:57
	16:42	17:51	18:51	20:55	21:53	22:17	21:42	20:30	19:07	17:51	15:54	15:49
29	08:27		07:03	05:43	04:45	04:34	05:15	06:17	07:19	08:22	08:27	08:58
	16:44		19:53	20:58	21:55	22:16	21:40	20:28	19:05	17:48	15:52	15:50
30	08:25		07:00	05:40	04:43	04:34	05:17	06:19	07:21	08:24	08:29	08:57
	16:46		19:55	21:00	21:56	22:16	21:38	20:25	19:02	17:46	15:51	15:51
31	08:23		06:57		04:42		05:19	06:21		07:27		08:57
	16:49		19:57		21:58		21:36	20:23		16:44		15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

flickering_Vestas_V162_Stelpe1

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

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Calculated:

04.04.2025 08:55/4.1.254

SHADOW - Calendar

Calculation: Flickering_Vestas_V162 Shadow receptor: Glizdi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (166)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
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7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:41 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
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11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:32 22:11	04:47 22:06	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 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 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	04:54 22:00	05:52 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 18:29	06:10 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:57 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:15	08:19 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 21:45	06:11 20:35	07:13 19:13	08:15 18:15	08:21 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 21:51	04:32 22:17	05:11 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:23 16:53	08:57 15:48
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29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:10	08:27 16:48	08:57 15:49
30	08:24 16:46		07:00 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:10	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:43		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Grašini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (182)
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 21:01	19:26 (3) 04:41	04:35 22:15	21:16 (4) 05:21	06:23 20:20	07:23 18:59	07:29 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:04	20:23 (6) 04:40	21:15 (4) 04:36	21:17 (4) 05:23	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	19:27 (3) 04:39	21:18 (4) 04:37	21:18 (4) 05:25	06:27 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 20:05	05:31 21:08	19:28 (3) 04:38	21:19 (4) 04:37	21:19 (4) 05:27	06:29 20:12	07:29 18:51	07:35 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	05:29 21:10	19:29 (3) 04:37	21:20 (4) 04:38	21:20 (4) 05:28	06:31 20:09	07:31 18:48	07:37 16:32	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	20:19 (6) 04:36	21:22 (4) 04:40	21:22 (4) 05:30	06:33 20:26	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	19:30 (3) 04:35	21:24 (4) 04:41	21:23 (4) 05:32	06:35 20:27	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	19:35 (3) 04:34	21:25 (4) 04:42	21:24 (4) 05:34	06:37 20:29	07:37 18:41	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	19:44 (3) 04:33	21:27 (4) 04:43	21:27 (4) 05:36	06:39 20:30	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	05:18 21:20	20:16 (6) 04:33	21:28 (4) 04:44	21:28 (4) 05:38	06:41 20:36	07:41 18:36	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	20:12 (4) 04:32	21:29 (4) 04:46	21:29 (4) 05:40	06:43 20:31	07:44 18:33	07:50 16:20	08:45 15:43
12	08:50 16:10	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	21:12 (4) 04:32	21:30 (4) 04:47	21:30 (4) 05:42	06:45 20:32	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:12 21:26	21:12 (4) 04:31	21:31 (4) 04:48	21:31 (4) 05:44	06:47 20:32	07:48 18:28	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:43 18:21	06:20 20:26	05:10 21:28	21:12 (4) 04:31	21:32 (4) 04:50	21:32 (4) 05:46	06:49 20:31	07:50 18:25	07:57 16:15	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	21:11 (4) 04:31	21:33 (4) 04:51	21:33 (4) 05:48	06:51 20:30	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	21:11 (4) 04:30	21:34 (4) 04:53	21:34 (4) 05:50	06:53 20:28	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	21:12 (4) 04:30	21:35 (4) 04:54	21:35 (4) 05:52	06:55 20:26	07:56 18:17	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	05:02 21:35	21:12 (4) 04:30	21:36 (4) 04:56	21:36 (4) 05:54	06:57 20:24	07:58 18:15	08:05 16:08	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	21:12 (4) 04:30	21:37 (4) 04:57	21:37 (4) 05:56	06:59 20:22	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:05 20:38	04:58 21:39	21:12 (4) 04:30	21:38 (4) 04:59	21:38 (4) 05:58	07:01 20:19	08:03 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:57 21:41	21:13 (4) 04:30	21:39 (4) 05:01	21:39 (4) 05:58	07:03 20:03	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	04:55 21:43	21:13 (4) 04:30	21:40 (4) 05:02	21:40 (4) 06:03	07:05 20:02	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	21:13 (4) 04:31	21:41 (4) 05:04	21:41 (4) 06:05	07:07 20:02	08:09 18:02	08:15 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	21:13 (4) 04:31	21:42 (4) 05:06	21:42 (4) 06:07	07:09 20:01	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	21:14 (4) 04:31	21:43 (4) 05:08	21:43 (4) 06:09	07:11 20:00	08:13 18:15	08:19 16:00	08:57 15:46
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27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	04:47 21:51	21:14 (4) 04:32	21:45 (4) 05:11	21:45 (4) 06:13	07:15 20:33	08:17 18:15	08:23 16:00	08:57 15:48
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29	08:26 16:44	07:02 17:52	05:42 19:52	04:44 21:54	04:44 21:54	21:15 (4) 04:33	21:47 (4) 05:15	21:47 (4) 06:17	07:19 20:37	08:22 18:15	08:27 16:00	08:57 15:50
30	08:25 16:46	07:00 17:55	05:40 19:55	04:43 21:56	04:43 21:56	21:16 (4) 04:34	21:48 (4) 05:17	21:48 (4) 06:19	07:21 20:41	08:24 18:16	08:29 16:00	08:57 15:51
31	08:23 16:48	06:57 17:57	05:42 19:57	04:42 21:57	04:42 21:57	21:17 (4) 04:35	21:49 (4) 05:19	21:49 (4) 06:21	07:23 20:43	08:26 18:17	08:31 16:00	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case				634	271	467	91	917				
Sun reduction				0,47	0,59	0,57	0,48	0,51				
Oper. time red.				1,00	1,00	1,00	1,00	1,00				
Wind dir. red.				1,00	1,00	1,00	1,00	1,00				
Total reduction				0,47	0,59	0,57	0,48	0,51				
Total, real				296	159	266	43	467				

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Gaguli - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (211)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 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 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:41 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
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11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
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23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
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31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 17:43		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Indras - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (198)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:05	04:38 22:01	04:36 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
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29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:21 16:48	08:27 15:52	08:57 15:49
30	08:24 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:22 16:46	08:28 15:51	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 16:43		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Jaunbirznieki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (185)
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	21	05:31 (3) 05:52 (3)	04:35 22:15	16	05:40 (3) 05:56 (3)	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:31 15:50
	2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04		04:40 22:00	21	05:31 (3) 05:52 (3)	04:36 22:15	17	05:39 (3) 05:56 (3)	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 17:58	06:49 20:03	05:33 21:06		04:39 22:02	21	05:32 (3) 05:53 (3)	04:37 22:14	17	05:39 (3) 05:56 (3)	05:25 21:30	06:27 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 20:05	05:31 21:08		04:38 22:03	20	05:33 (3) 05:53 (3)	04:38 22:14	18	05:39 (3) 05:57 (3)	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
	5	08:56 15:59	08:13 17:00	07:06 18:02	06:44 20:07	05:29 21:10		04:37 22:04	19	05:33 (3) 05:52 (3)	04:39 22:13	19	05:39 (3) 05:58 (3)	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	05:27 21:12		04:36 22:06	19	05:33 (3) 05:52 (3)	04:40 22:12	19	05:39 (3) 05:58 (3)	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	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	18	05:34 (3) 05:52 (3)	04:41 22:12	19	05:39 (3) 05:58 (3)	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	18	05:34 (3) 05:52 (3)	04:42 22:11	20	05:39 (3) 05:59 (3)	05:35 21:19	06:37 20:01	07:37 18:41	07:44 16:26	08:42 15:45
	9	08:53 16:05	08:04 17:09	06:56 18:10	06:33 20:16	05:20 21:18		04:34 22:09	17	05:35 (3) 05:52 (3)	04:43 22:10	20	05:39 (3) 05:59 (3)	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	17	05:35 (3) 05:52 (3)	04:44 22:09	20	05:39 (3) 05:59 (3)	05:39 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	16	05:36 (3) 05:52 (3)	04:46 22:08	22	05:39 (3) 06:01 (3)	05:41 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:46 15:44
	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	15	05:36 (3) 05:51 (3)	04:47 22:07	22	05:39 (3) 06:01 (3)	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 22:12	14	05:37 (3) 05:51 (3)	04:48 22:05	22	05:39 (3) 06:01 (3)	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	2	04:31 22:13	14	05:37 (3) 05:51 (3)	04:50 22:04	22	05:39 (3) 06:01 (3)	05:47 21:05	06:49 19:45	07:50 18:25	07:57 16:15	08:49 15:43
	15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	7	04:31 22:14	14	05:38 (3) 05:52 (3)	04:51 22:03	23	05:39 (3) 06:02 (3)	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	10	04:30 22:14	14	05:37 (3) 05:52 (3)	04:53 22:02	22	05:39 (3) 06:01 (3)	05:51 21:00	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	13	04:30 22:15	13	05:38 (3) 05:51 (3)	04:54 22:00	22	05:40 (3) 06:02 (3)	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	16	04:30 22:15	13	05:33 (3) 05:51 (3)	04:56 21:59	23	05:39 (3) 06:02 (3)	05:55 20:56	06:57 19:34	07:58 18:15	08:05 16:08	08:53 15:43
	19	08:42 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:37	18	04:30 22:16	12	05:32 (3) 05:52 (3)	04:58 21:57	22	05:40 (3) 06:02 (3)	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	04:59 21:39	19	04:30 22:16	12	05:31 (3) 05:52 (3)	04:59 21:56	22	05:40 (3) 06:02 (3)	05:59 20:51	07:01 19:29	08:03 18:10	08:09 16:04	08:54 15:44
	21	08:40 16:27	07:37 17:36	06:24 18:36	06:02 20:41	04:57 21:41	20	04:30 22:17	12	05:30 (3) 05:52 (3)	04:50 21:54	22	05:40 (3) 06:02 (3)	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	21	04:30 22:17	12	05:30 (3) 05:52 (3)	04:55 21:53	21	05:40 (3) 06:01 (3)	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:55 15:45
	23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	22	04:31 22:17	12	05:30 (3) 05:52 (3)	04:54 21:51	20	05:41 (3) 06:01 (3)	06:05 20:43	07:07 19:21	08:09 18:03	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	22	04:31 22:17	13	05:40 (3) 05:53 (3)	05:06 21:49	19	05:41 (3) 06:00 (3)	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:59	08:56 15:46
	25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	22	04:31 22:17	13	05:30 (3) 05:52 (3)	05:08 21:47	17	05:43 (3) 06:00 (3)	06:09 20:38	07:11 19:15	07:13 16:58	08:19 15:57	08:57 15:46
	26	08:32 16:37	07:24 17:47	06:11 18:46	05:50 20:51	04:49 21:50	22	04:32 22:17	13	05:30 (3) 05:53 (3)	05:10 21:46	15	05:45 (3) 06:00 (3)	06:11 20:36	07:13 19:13	07:16 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	23	04:32 22:17	14	05:30 (3) 05:53 (3)	05:12 21:44	12	05:46 (3) 05:58 (3)	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	22	04:33 22:17	13	05:31 (3) 05:53 (3)	05:13 21:42	9	05:48 (3) 05:57 (3)	06:15 20:30	07:17 19:07	07:20 16:51	08:25 15:53	08:57 15:49
	29	08:26 16:44		07:02 19:53	05:43 20:57	04:45 21:55	22	04:34 22:16	14	05:30 (3) 05:52 (3)	05:15 21:40	5	05:50 (3) 05:55 (3)	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		07:00 19:55	05:40 20:59	04:43 21:56	22	04:34 22:16	15	05:30 (3) 05:55 (3)	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		06:57 19:57		04:42 21:58	22	04:30 (3) 05:52 (3)			05:19 21:36			06:21 20:23		07:26 16:44	08:57 15:52	
Potential sun hours		235	266	366	426	508		529			530		470	385	324	247	216	
Total, worst case						325		459			547							
Sun reduction						0,59		0,57			0,48							
Oper. time red.						1,00		1,00			1,00							
Wind dir. red.						1,00		1,00			1,00							
Total reduction						0,59		0,57			0,48							
Total, real						191		262			261							

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Jaunpenki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (190)
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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:01	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	07:38 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:38 20:12	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 16:29	08:40 15:46
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	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	06:31 20:18	05:18 21:20	04:33 22:10	04:45 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:13	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 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	04:31 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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	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	04:58 21:57	05:57 20:53	06:59 19:32	08:01 18:13	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	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 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 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 18:15	08:21 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 20:53	04:48 21:51	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:23 16:53	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	08:20 18:05	08:25 16:51	08:57 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	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	08:24 18:05	08:29 16:46	08:57 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 18:44		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Jaunstamuri - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (199)
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	05:31 (3) 22:15	04:35 22:15	05:37 (3) 22:15	06:10 (3) 22:15	07:23 22:15	07:29 22:15
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:00	05:31 (3) 22:15	04:36 22:15	05:36 (3) 22:15	06:09 (3) 22:32	07:25 22:32	07:31 22:32
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	05:32 (3) 22:14	04:37 22:14	05:36 (3) 22:30	06:09 (3) 22:30	07:27 22:30	07:33 22:30
4	08:56 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	05:32 (3) 22:14	04:38 22:14	05:37 (3) 22:28	06:29 22:28	07:29 22:28	07:35 22:28
5	08:56 15:58	08:13 17:00	07:06 18:02	06:44 20:07	05:29 21:10	04:37 22:04	05:31 (3) 22:13	04:39 22:13	05:37 (3) 22:26	06:31 22:26	07:31 22:26	07:37 22:26
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	05:31 (3) 22:12	04:40 22:12	05:37 (3) 22:24	06:33 22:24	07:33 22:24	07:40 22:24
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	05:32 (3) 22:12	04:41 22:12	05:38 (3) 22:21	06:35 22:21	07:35 22:21	07:42 22:21
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	05:32 (3) 22:11	04:42 22:11	05:38 (3) 22:19	06:37 22:19	07:37 22:19	07:44 22:19
9	08:53 16:05	08:04 17:09	06:56 18:10	06:33 20:16	05:20 21:18	04:34 22:09	05:32 (3) 22:10	04:43 22:10	05:38 (3) 22:17	06:39 22:17	07:40 22:17	07:46 22:17
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	05:32 (3) 22:09	04:44 22:09	05:38 (3) 22:15	06:41 22:15	07:42 22:15	07:48 22:15
11	08:51 16:08	08:00 17:13	06:51 18:15	06:28 20:20	05:16 21:22	04:32 22:11	05:32 (3) 22:08	04:46 22:08	05:39 (3) 22:12	06:43 22:12	07:44 22:12	07:50 22:12
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	05:32 (3) 22:07	04:47 22:07	05:40 (3) 22:10	06:45 22:10	07:46 22:10	07:53 22:10
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	05:32 (3) 22:05	04:48 22:05	05:40 (3) 22:08	06:47 22:08	07:48 22:08	07:55 22:08
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	05:33 (3) 22:06	04:50 22:06	05:40 (3) 22:09	06:49 22:09	07:50 22:09	07:57 22:09
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	04:31 22:14	05:33 (3) 22:03	04:51 22:03	05:41 (3) 22:03	06:51 22:03	07:52 22:03	08:00 22:03
16	08:46 16:17	07:49 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	05:33 (3) 22:02	04:53 22:02	05:41 (3) 22:00	06:53 22:00	07:54 22:00	08:01 22:00
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	05:33 (3) 22:00	04:54 22:00	05:42 (3) 22:08	06:55 22:08	07:56 22:08	08:03 22:08
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:34	05:02 21:36	04:30 22:15	05:33 (3) 21:59	04:56 21:59	05:42 (3) 22:06	06:57 22:06	07:58 22:06	08:05 22:06
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 22:16	05:33 (3) 21:57	04:58 21:57	05:43 (3) 22:03	06:59 22:03	08:01 22:03	08:07 22:03
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:59 21:39	04:30 22:16	05:34 (3) 21:56	04:59 21:56	05:44 (3) 22:01	07:01 22:01	08:03 22:01	08:09 22:01
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:16	05:34 (3) 21:54	05:01 21:54	05:44 (3) 22:04	07:03 22:04	08:05 22:04	08:12 22:04
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	05:34 (3) 21:53	05:03 21:53	05:46 (3) 22:06	07:05 22:06	08:07 22:06	08:14 22:06
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	05:34 (3) 21:51	05:04 21:51	05:48 (3) 22:03	07:07 22:03	08:09 22:03	08:16 22:03
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	05:35 (3) 21:49	05:06 21:49	05:49 (3) 22:01	07:09 22:01	08:11 22:01	08:18 22:01
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:35 (3) 21:47	05:08 21:47	05:52 (3) 22:00	07:11 22:00	08:13 22:00	08:19 22:00
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	05:36 (3) 21:46	05:10 21:46	06:00 (3) 22:03	07:13 22:03	08:16 22:03	08:21 22:03
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	05:35 (3) 21:44	05:12 21:44	06:13 22:03	07:15 22:03	08:18 22:03	08:23 22:03
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	05:36 (3) 21:42	05:13 21:42	06:15 22:03	07:17 22:03	08:20 22:03	08:25 22:03
29	08:26 16:44	07:17 17:53	06:02 19:00	05:43 20:57	04:45 21:55	04:34 22:16	05:36 (3) 21:40	05:15 21:40	06:17 22:08	07:19 22:08	08:22 22:08	08:27 22:08
30	08:25 16:46	07:15 17:55	06:00 19:05	05:40 20:59	04:43 21:56	04:34 22:16	05:36 (3) 21:38	05:17 21:38	06:19 22:05	07:21 22:05	08:24 22:05	08:29 22:05
31	08:23 16:48	07:13 17:57	05:57 19:06	05:38 20:58	04:42 21:58	04:31 22:16	05:37 (3) 21:36	05:19 21:36	06:21 22:02	07:23 22:02	08:26 22:02	08:31 22:02
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case					309	979	683					
Sun reduction					0,59	0,57	0,48					
Oper. time red.					1,00	1,00	1,00					
Wind dir. red.					1,00	1,00	1,00					
Total reduction					0,59	0,57	0,48					
Total, real					182	558	326					

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Jaunsetas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (231)
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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	07:38 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:22	06:35 20:04	07:36 18:43	07:42 16:29	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	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	08:53 16:06	08:02 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:13	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 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	04:31 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 18:28	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 18:18	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:35	07:59 18:15	08:06 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	04:58 21:58	05:57 20:53	06:59 19:32	08:01 18:13	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	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 21:47	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:59	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 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 18:15	08:22 15:56	08:57 15:47
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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 20:31	07:17 19:07	08:20 18:05	08:25 16:51	08:58 15:49
29	08:27 16:44	07:19 19:53	06:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:58 15:50
30	08:25 16:46	07:00 19:55	05:40 21:00	05:40 21:00	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:05	08:29 16:46	08:58 15:51
31	08:23 16:48	06:57 19:57	06:57 19:57	06:57 19:57	06:57 19:57	06:57 19:57	06:57 19:57	06:57 19:57	06:57 19:57	06:57 19:57	06:57 19:57	06:57 19:57
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Jaunvilni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (176)
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	06:23 (3) 21:59	04:41 21:34	04:35 22:16	05:21 20:20	06:23 18:59	07:23 16:41	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	06:25 (3) 22:00	04:40 22:00	04:36 22:15	05:23 21:32	06:25 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	06:49 20:03	05:33 21:06	06:26 (3) 22:02	04:39 22:02	04:37 22:15	05:25 21:30	06:27 18:54	07:27 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	06:32 (3) 22:03	04:38 22:03	04:38 22:14	05:27 21:28	06:29 18:51	07:29 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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 18:49	07:31 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12		04:36 22:06	04:40 22:12	05:31 21:24	06:33 18:46	07:33 16:31	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 18:43	07:35 16:28	08:40 15:45
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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	05:41 21:12	06:42 (3) 18:33	07:45 16:20	08:46 15:44
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	06:44 (3) 18:30	07:46 16:18	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26		04:31 22:12	04:49 22:06	05:45 21:08	06:45 (3) 18:28	07:48 16:17	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	05:47 22:04	05:47 21:05	06:46 (3) 18:25	07:50 16:15	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30		04:31 22:14	05:15 (6) 22:03	05:49 21:03	06:46 (3) 18:23	07:52 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 22:14	05:16 (6) 22:02	05:51 21:01	06:46 (3) 18:20	07:54 16:11	08:51 15:43
17	08:45 16:19	07:47 17:27	06:35 18:28	06:12 20:32	05:04 21:34		04:30 22:15	05:17 (6) 22:00	05:53 20:58	06:47 (3) 18:17	07:56 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	05:18 (6) 21:59	05:55 20:56	06:48 (3) 18:15	07:58 16:08	08:53 15:43
19	08:42 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:37		04:30 22:16	05:19 (6) 21:57	05:57 20:53	06:49 (3) 18:12	08:01 16:06	08:54 15:43
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	06:31 (3) 21:39		04:30 22:16	05:19 (6) 21:56	05:59 20:51	06:30 (3) 18:10	08:03 16:04	08:54 15:44
21	08:40 16:27	07:37 17:36	06:24 18:36	06:02 20:41	06:29 (3) 21:41		04:30 22:17	05:09 (6) 21:54	06:01 20:48	06:32 (3) 18:07	08:05 16:03	08:55 15:44
22	08:38 16:29	07:34 17:38	06:21 18:38	06:00 20:43	06:26 (3) 21:43		04:30 22:17	05:09 (6) 21:53	06:03 20:46	06:34 (3) 18:05	08:07 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	06:24 (3) 21:45		04:31 22:17	05:09 (6) 21:51	06:05 20:43	06:35 (3) 18:03	08:09 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 20:47	06:22 (3) 21:46		04:31 22:17	05:10 (6) 21:49	06:07 20:41	06:40 (3) 18:01	08:11 15:59	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	06:21 (3) 21:48		04:31 22:17	05:11 (6) 21:47	06:09 20:38	07:11 18:00	08:13 15:57	08:57 15:46
26	08:32 16:37	07:24 17:47	06:11 18:46	05:50 20:51	06:21 (3) 21:50		04:32 22:17	05:12 (6) 21:46	06:11 20:36	07:13 18:00	08:14 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:48	05:47 20:53	06:21 (3) 21:51		04:32 22:17	05:12 (6) 21:44	06:13 20:33	07:15 18:00	08:15 15:55	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:51	05:45 20:55	06:21 (3) 21:53		04:33 22:17	05:13 (6) 21:42	06:15 20:30	07:17 18:00	08:16 15:53	08:57 15:49
29	08:27 16:44		07:02 19:53	05:43 20:57	06:21 (3) 21:55		04:34 22:16	05:14 (6) 21:40	06:17 20:28	07:19 18:00	08:17 15:52	08:57 15:50
30	08:25 16:46		07:00 19:55	05:40 21:00	06:22 (3) 21:56		04:34 22:16	05:17 (6) 21:38	06:19 20:25	07:21 18:00	08:18 15:51	08:57 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 18:00	08:19 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case				172	30	126		199				
Sun reduction				0,47	0,59	0,57		0,51				
Oper. time red.				1,00	1,00	1,00		1,00				
Wind dir. red.				1,00	1,00	1,00		1,00				
Total reduction				0,47	0,59	0,57		0,51				
Total, real				80	18	72		101				

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Kalna Druvas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (168)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:52	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:35 22:15	05:23 21:32	06:25 20:17	07:31 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:34	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:35 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 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 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:11	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:02	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:51	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:41	04:56 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:46	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:05	08:19 15:57	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:49 20:51	04:48 21:50	04:31 22:17	05:09 21:46	06:10 20:35	07:13 19:13	08:15 18:05	08:21 15:56	08:57 15:47
27	08:30 16:39	07:22 17:48	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	08:18 18:05	08:23 15:54	08:57 15:48
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:00	08:25 15:53	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:04	08:27 15:52	08:57 15:49
30	08:25 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:00	08:29 15:51	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:43		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Kalna Skola - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (179)
 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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:52	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:35 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:34	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:35 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 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 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:11	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:02	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:51	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:56 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:46	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:05	08:19 15:57	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:49 20:51	04:48 21:50	04:31 22:17	05:09 21:46	06:10 20:35	07:13 19:12	08:15 18:05	08:21 15:56	08:57 15:47
27	08:30 16:39	07:22 17:48	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17	05:11 21:44	06:12 20:33	07:15 19:10	08:18 18:05	08:23 16:53	08:57 15:47
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:00	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:04	08:27 16:48	08:57 15:49
30	08:24 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:00	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:00		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Kalnamuižas kapi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (174)
 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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:35 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07	04:40 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:11	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:02	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:56 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:05	08:19 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	04:31 22:17	05:09 21:45	06:10 20:35	07:13 19:13	08:15 18:05	08:21 15:56	08:57 15:47
27	08:30 16:39	07:22 17:48	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	08:18 18:05	08:23 16:53	08:57 15:48
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:00	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:04	08:27 16:48	08:57 15:49
30	08:24 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:05	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:06		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Kaspari - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (205)
 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	25	07:39 (6) 08:04 (6)	05:38 21:02	04:41 21:59	05:29 (5) 05:50 (5)
2	08:57 15:54	08:19 16:53	07:14 17:55		06:52 20:01	29	07:36 (6) 08:05 (6)	05:36 21:04	04:40 22:00	05:29 (5) 05:50 (5)
3	08:57 15:56	08:17 16:55	07:12 17:58		06:49 20:03	39	07:14 (4) 08:06 (6)	05:33 21:06	04:39 22:02	05:29 (5) 05:50 (5)
4	08:56 15:57	08:15 16:57	07:09 18:00		06:46 20:05	47	07:12 (4) 08:08 (6)	05:31 21:08	04:38 22:03	05:30 (5) 05:51 (5)
5	08:56 15:58	08:13 17:00	07:06 18:02		06:44 20:07	53	07:09 (4) 08:08 (6)	05:29 21:10	04:37 22:04	05:30 (5) 05:51 (5)
6	08:55 16:00	08:11 17:02	07:04 18:04	11	07:30 (3) 07:41 (3)	57	07:07 (4) 08:08 (6)	05:26 21:12	04:36 22:06	05:30 (5) 05:50 (5)
7	08:55 16:01	08:09 17:04	07:01 18:06	15	07:27 (3) 07:42 (3)	61	07:06 (4) 08:09 (6)	05:24 21:14	04:35 22:07	05:31 (5) 05:51 (5)
8	08:54 16:03	08:07 17:06	06:59 18:08	19	07:24 (3) 07:43 (3)	63	07:05 (4) 08:09 (6)	05:22 21:16	04:34 22:08	05:31 (5) 05:50 (5)
9	08:53 16:05	08:05 17:09	06:56 18:10	20	07:24 (3) 07:44 (3)	64	07:05 (4) 08:10 (6)	05:20 21:18	04:33 22:09	05:31 (5) 05:50 (5)
10	08:52 16:06	08:02 17:11	06:53 18:13	22	07:23 (3) 07:45 (3)	66	07:04 (4) 08:10 (6)	05:18 21:20	04:33 22:10	05:32 (5) 05:50 (5)
11	08:52 16:08	08:00 17:13	06:51 18:15	22	07:22 (3) 07:44 (3)	66	07:03 (4) 08:09 (6)	05:16 21:22	04:32 22:11	05:33 (5) 05:51 (5)
12	08:51 16:10	07:58 17:15	06:48 18:17	23	07:22 (3) 07:45 (3)	66	07:04 (4) 08:10 (6)	05:14 21:24	04:32 22:12	05:33 (5) 05:50 (5)
13	08:50 16:11	07:56 17:18	06:45 18:19	23	07:21 (3) 07:44 (3)	65	07:04 (4) 08:09 (6)	05:12 21:26	04:31 22:12	05:34 (5) 05:50 (5)
14	08:49 16:13	07:53 17:20	06:43 18:21	23	07:21 (3) 07:44 (3)	63	07:05 (4) 08:09 (6)	05:10 21:28	04:31 22:13	05:34 (5) 05:50 (5)
15	08:48 16:15	07:51 17:22	06:40 18:23	22	07:21 (3) 07:43 (3)	60	07:05 (4) 08:08 (6)	05:08 21:30	04:31 22:14	05:35 (5) 05:51 (5)
16	08:46 16:17	07:49 17:24	06:37 18:25	20	07:22 (3) 07:42 (3)	57	07:07 (4) 08:08 (6)	05:06 21:32	04:30 22:15	05:34 (5) 05:50 (5)
17	08:45 16:19	07:46 17:27	06:35 18:27	17	07:23 (3) 07:40 (3)	52	07:08 (4) 08:07 (6)	05:04 21:34	04:30 22:15	05:35 (5) 05:50 (5)
18	08:44 16:21	07:44 17:29	06:32 18:30	14	07:24 (3) 07:38 (3)	41	07:25 (6) 08:06 (6)	05:02 21:36	04:30 22:16	05:35 (5) 05:50 (5)
19	08:43 16:23	07:42 17:31	06:29 18:32	9	07:27 (3) 07:36 (3)	40	07:25 (6) 08:05 (6)	05:00 21:38	04:30 22:16	05:35 (5) 05:50 (5)
20	08:41 16:25	07:39 17:33	06:27 18:34		06:05 20:39	38	07:26 (6) 08:04 (6)	04:59 21:39	04:30 22:16	05:37 (5) 05:51 (5)
21	08:40 16:27	07:37 17:35	06:24 18:36		06:02 20:41	37	07:27 (6) 08:04 (6)	04:57 21:41	04:30 22:17	05:37 (5) 05:51 (5)
22	08:38 16:29	07:34 17:38	06:21 18:38		06:00 20:43	35	07:27 (6) 08:02 (6)	04:55 21:43	04:30 22:17	05:37 (5) 05:51 (5)
23	08:37 16:31	07:32 17:40	06:19 18:40		05:57 20:45	33	07:28 (6) 08:01 (6)	04:53 21:45	04:31 22:17	05:37 (5) 05:51 (5)
24	08:35 16:33	07:29 17:42	06:16 18:42		05:55 20:47	30	07:29 (6) 07:59 (6)	04:52 21:46	04:31 22:17	05:37 (5) 05:52 (5)
25	08:33 16:35	07:27 17:44	06:13 18:44		05:52 20:49	27	07:30 (6) 07:57 (6)	04:50 21:48	04:31 22:17	05:37 (5) 05:52 (5)
26	08:32 16:37	07:24 17:47	06:11 18:46		05:50 20:51	23	07:32 (6) 07:55 (6)	04:49 21:50	04:32 22:17	05:37 (5) 05:52 (5)
27	08:30 16:40	07:22 17:49	06:08 18:48		05:47 20:53	18	07:35 (6) 07:53 (6)	04:47 21:51	04:32 22:17	05:37 (5) 05:53 (5)
28	08:28 16:42	07:19 17:51	06:05 18:51		05:45 20:55	11	07:37 (6) 07:48 (6)	04:46 21:53	04:33 22:17	05:38 (5) 05:54 (5)
29	08:27 16:44		07:02 19:53		05:43 20:57			04:45 21:55	04:33 22:16	05:37 (5) 05:53 (5)
30	08:25 16:46		07:00 19:55	11	07:46 (6) 07:57 (6)			04:43 21:56	04:34 22:16	05:37 (5) 05:54 (5)
31	08:23 16:48		06:57 19:57	20	07:41 (6) 08:01 (6)			04:42 21:58		
Potential sun hours	235	266	366		426		508		529	
Total, worst case			291		1266		305		511	
Sun reduction			0,40		0,47		0,59		0,57	
Oper. time red.			1,00		1,00		1,00		1,00	
Wind dir. red.			1,00		1,00		1,00		1,00	
Total reduction			0,40		0,47		0,59		0,57	
Total, real			117		591		179		291	

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Kaspari - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (205)
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 (5)	05:21			06:23		07:03 (4)	07:23		08:01 (3)	07:29		08:31			
	22:16	17	05:55 (5)	21:34			20:20	66	08:09 (6)	18:59	23	08:24 (3)	16:41		15:50			
2	04:36		05:37 (5)	05:23			06:25		07:02 (4)	07:25		08:01 (3)	07:31		08:32			
	22:15	17	05:54 (5)	21:32			20:17	66	08:08 (6)	18:57	23	08:24 (3)	16:39		15:49			
3	04:37		05:37 (5)	05:25			06:27		07:02 (4)	07:27		08:01 (3)	07:33		08:34			
	22:15	18	05:55 (5)	21:30			20:15	64	08:07 (6)	18:54	22	08:23 (3)	16:37		15:48			
4	04:38		05:37 (5)	05:27			06:29		07:02 (4)	07:29		08:01 (3)	07:35		08:36			
	22:14	19	05:56 (5)	21:28			20:12	63	08:06 (6)	18:51	21	08:22 (3)	16:35		15:47			
5	04:39		05:37 (5)	05:29			06:31		07:02 (4)	07:31		08:01 (3)	07:37		08:37			
	22:13	19	05:56 (5)	21:26			20:09	62	08:06 (6)	18:49	20	08:21 (3)	16:33		15:47			
6	04:40		05:37 (5)	05:31			06:33		07:03 (4)	07:33		08:02 (3)	07:40		08:39			
	22:13	20	05:57 (5)	21:24			20:07	58	08:05 (6)	18:46	17	08:19 (3)	16:30		15:46			
7	04:41		05:37 (5)	05:33			06:35		07:04 (4)	07:35		08:04 (3)	07:42		08:40			
	22:12	20	05:57 (5)	21:21			20:04	54	08:03 (6)	18:43	13	08:17 (3)	16:28		15:45			
8	04:42		05:37 (5)	05:35			06:37		07:06 (4)	07:37		08:06 (3)	07:44		08:42			
	22:11	20	05:57 (5)	21:19			20:01	48	08:02 (6)	18:41	8	08:14 (3)	16:26		15:45			
9	04:43		05:37 (5)	05:37			06:39		07:08 (4)	07:40			07:46		08:43			
	22:10	21	05:58 (5)	21:17			19:59	40	08:00 (6)	18:38			16:24		15:44			
10	04:44		05:36 (5)	05:39			06:41		07:29 (6)	07:42			07:48		08:44			
	22:09	22	05:58 (5)	21:15			19:56	30	07:59 (6)	18:35			16:22		15:44			
11	04:46		05:37 (5)	05:41			06:43		07:31 (6)	07:44			07:51		08:46			
	22:08	22	05:59 (5)	21:12			19:53	25	07:56 (6)	18:33			16:20		15:44			
12	04:47		05:37 (5)	05:43			06:45		07:33 (6)	07:46			07:53		08:47			
	22:07	22	05:59 (5)	21:10			19:51	21	07:54 (6)	18:30			16:18		15:43			
13	04:48		05:37 (5)	05:45			06:47		07:36 (6)	07:48			07:55		08:48			
	22:06	22	05:59 (5)	21:08			19:48	14	07:50 (6)	18:28			16:17		15:43			
14	04:50		05:36 (5)	05:47			06:49			07:50			07:57		08:49			
	22:04	23	05:59 (5)	21:05			19:45			18:25			16:15		15:43			
15	04:51		05:37 (5)	05:49			06:51			07:52			07:59		08:50			
	22:03	23	06:00 (5)	21:03	13	07:57 (6)	19:43			18:23			16:13		15:43			
16	04:53		05:37 (5)	05:51			07:40 (6)	06:53		07:54			08:01		08:51			
	22:02	22	05:59 (5)	21:01	20	08:00 (6)	19:40			18:20			16:11		15:43			
17	04:54		05:38 (5)	05:53			07:38 (6)	06:55		07:56			08:03		08:52			
	22:00	22	06:00 (5)	20:58	24	08:02 (6)	19:37			18:17			16:09		15:43			
18	04:56		05:37 (5)	05:55			07:36 (6)	06:57		07:58			08:05		08:53			
	21:59	23	06:00 (5)	20:56	28	08:04 (6)	19:34			18:15			16:08		15:43			
19	04:58		05:37 (5)	05:57			07:35 (6)	06:59		08:01			08:07		08:54			
	21:57	22	05:59 (5)	20:53	30	08:05 (6)	19:32			18:12			16:06		15:43			
20	04:59		05:38 (5)	05:59			07:34 (6)	07:01		08:03			08:10		08:54			
	21:56	21	05:59 (5)	20:51	33	08:07 (6)	19:29			18:10			16:04		15:44			
21	05:01		05:38 (5)	06:01			07:32 (6)	07:03		08:05			08:12		08:55			
	21:54	21	05:59 (5)	20:48	36	08:08 (6)	19:26			18:07			16:03		15:44			
22	05:03		05:39 (5)	06:03			07:30 (6)	07:05		08:07			08:14		08:56			
	21:53	20	05:59 (5)	20:46	38	08:08 (6)	19:24			18:05			16:01		15:44			
23	05:04		05:40 (5)	06:05			07:29 (6)	07:07		08:09			08:16		08:56			
	21:51	19	05:59 (5)	20:43	39	08:08 (6)	19:21			18:03			16:00		15:45			
24	05:06		05:41 (5)	06:07			07:29 (6)	07:09		08:11 (3)	08:11		08:18		08:56			
	21:49	17	05:58 (5)	20:41	40	08:09 (6)	19:18	6	08:17 (3)	18:00			15:58		15:46			
25	05:08		05:43 (5)	06:09			07:28 (6)	07:11		08:07 (3)	07:13		08:20		08:57			
	21:48	14	05:57 (5)	20:38	41	08:09 (6)	19:15	13	08:20 (3)	16:58			15:57		15:46			
26	05:10		05:44 (5)	06:11			07:11 (4)	07:13		08:05 (3)	07:16		08:21		08:57			
	21:46	12	05:56 (5)	20:36	53	08:10 (6)	19:13	17	08:22 (3)	16:55			15:56		15:47			
27	05:11		05:46 (5)	06:13			07:08 (4)	07:15		08:03 (3)	07:18		08:23		08:57			
	21:44	9	05:55 (5)	20:33	58	08:10 (6)	19:10	20	08:23 (3)	16:53			15:55		15:48			
28	05:13		05:48 (5)	06:15			07:07 (4)	07:17		08:02 (3)	07:20		08:25		08:57			
	21:42	5	05:53 (5)	20:30	61	08:10 (6)	19:07	21	08:23 (3)	16:51			15:53		15:49			
29	05:15			06:17			07:06 (4)	07:19		08:02 (3)	07:22		08:27		08:57			
	21:40			20:28	63	08:10 (6)	19:05	22	08:24 (3)	16:48			15:52		15:50			
30	05:17			06:19			07:05 (4)	07:21		08:02 (3)	07:24		08:29		08:57			
	21:38			20:25	65	08:10 (6)	19:02	22	08:24 (3)	16:46			15:51		15:51			
31	05:19			06:21			07:04 (4)			07:27					08:57			
	21:36			20:23	65	08:09 (6)				16:44					15:52			
Potential sun hours	530			470			385			323			247		216			
Total, worst case		532			707			732			147							
Sun reduction		0,48			0,51			0,46			0,28							
Oper. time red.		1,00			1,00			1,00			1,00							
Wind dir. red.		1,00			1,00			1,00			1,00							
Total reduction		0,48			0,51			0,46			0,28							
Total, real		254			360			339			41							

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Krogsetas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (232)
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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	07:38 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	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 16:29	08:40 15:46
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	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	06:31 20:18	05:18 21:20	04:33 22:10	04:45 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:32 22:13	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 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	04:31 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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:34	07:59 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	04:58 21:57	05:57 20:53	06:59 19:32	08:01 18:13	08:08 16:06	08:54 15:44
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:34 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:32 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:14 18:16	08:20 16:08	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 18:15	08:21 16:05	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 20:53	04:48 21:51	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:23 16:53	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	08:20 18:05	08:25 16:51	08:57 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	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	08:24 18:05	08:29 16:46	08:57 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 18:05		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Klavas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (181)
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 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:14	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	05:27 21:12	04:36 22:06	04:40 22:12	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	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 16:05	08:04 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	06:31 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:12	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	08:47 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	04:31 22:14	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 18:28	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 22:15	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	08:42 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:37	04:30 22:16	04:58 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	04:59 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 17:36	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:05	08:19 16:58	08:57 15:46
26	08:32 16:37	07:24 17:47	06:11 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	08:16 18:05	08:21 16:55	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	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:03	08:23 16:53	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	08:20 18:01	08:25 16:51	08:57 15:49
29	08:27 16:44		07:02 19:53	05:43 20:57	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:57 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	08:24 18:00	08:29 16:46	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:26 16:44		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Laivenieki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (178)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:35 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:35 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 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 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
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11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
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31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:00		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Laucini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (191)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
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11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
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23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
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31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:00		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Lejies i - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (197)
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 08:57 15:54	08:21 16:50 08:19 16:53	07:16 17:53 07:14 17:55	06:54 17:53 06:51 20:01	05:38 21:01 05:35 21:03	04:41 21:59 04:39 22:00	04:35 22:15 04:36 22:15	05:21 21:34 05:23 20:17	06:23 19:48 (5) 19:49 (5) 07:25	07:23 18:59 07:25 18:56	18:14 (4) 16:41 18:15 (4) 16:39	07:28 15:50 08:32 15:49
2	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	18:16 (4) 16:37	08:34 15:48
3	08:56 15:57	08:15 16:57	07:09 17:59	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	18:17 (4) 16:35	08:35 15:47
4	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	18:21 (4) 16:32	08:37 15:46
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6	08:54 16:01	08:09 17:04	07:01 18:06	06:38 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	18:17 (4) 16:28	08:40 15:45
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10	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 20:53	07:43 18:33	18:17 (4) 16:20	08:45 15:43
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15	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:02	05:50 21:00	06:53 20:40	07:54 18:20	18:17 (4) 16:11	08:51 15:43
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18	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 20:31	08:00 18:12	18:17 (4) 16:06	08:54 15:43
19	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:51	19:52 (5) 20:01 (5)	07:01 19:29	18:12 18:10	08:55 15:43
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21	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:46	19:49 (5) 20:04 (5)	07:05 19:23	18:07 18:05	08:55 15:44
22	08:36 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	06:04 20:43	19:48 (5) 20:04 (5)	07:07 19:21	18:09 18:02	08:56 15:45
23	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	19:47 (5) 20:05 (5)	07:09 19:18	18:19 (4) 18:33 (4)	08:56 15:45
24	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	19:46 (5) 20:05 (5)	07:11 19:15	18:17 (4) 18:34 (4)	08:57 15:46
25	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 20:35	19:46 (5) 20:05 (5)	07:13 19:13	18:16 (4) 18:35 (4)	08:57 15:47
26	08:30 16:39	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	19:46 (5) 20:02 (5)	07:15 19:10	18:15 (4) 18:35 (4)	08:57 15:48
27	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	19:46 (5) 20:00 (5)	07:17 19:07	18:14 (4) 18:35 (4)	08:57 15:48
28	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	19:46 (5) 19:57 (5)	07:19 19:04	18:14 (4) 18:34 (4)	08:57 15:49
29	08:25 16:46		07:00 19:55	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	19:46 (5) 19:54 (5)	07:21 19:02	18:14 (4) 18:31 (4)	08:57 15:50
30	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22	19:47 (5) 19:51 (5)		16:43 16:43	08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction			172	164				161	140		36	
Oper. time red.			0,40	0,47				0,51	0,46		0,28	
Wind dir. red.			1,00	1,00				1,00	1,00		1,00	
Total reduction			0,40	0,77				0,51	0,46		0,28	
Total, real			69	77				82	65		10	

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Licupes - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (217)
Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

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	15:59 (5) 16:16 (5)	07:17 17:53	06:54 19:59	19:01 (13) 21:02
2	08:57 15:54	08:19 16:53	15:58 (5) 16:17 (5)	07:14 17:55	06:51 20:01	19:13 (13) 21:04
3	08:57 15:55	08:17 16:55	15:58 (5) 16:18 (5)	07:11 17:57	06:49 20:03	19:11 (13) 21:06
4	08:56 15:57	08:15 16:57	15:59 (5) 16:18 (5)	07:09 17:59	06:46 20:05	05:31 21:08
5	08:56 15:58	08:13 16:59	15:59 (5) 16:18 (5)	07:06 18:02	06:43 20:07	05:28 21:10
6	08:55 16:00	08:11 17:01	16:00 (5) 16:18 (5)	07:04 18:04	06:41 20:09	05:26 21:12
7	08:55 16:01	08:09 17:04	16:00 (5) 16:17 (5)	07:01 18:06	06:38 20:11	05:24 21:14
8	08:54 16:03	08:07 17:06	16:01 (5) 16:17 (5)	06:58 18:08	06:36 20:13	05:22 21:16
9	08:53 16:04	08:04 17:08	16:03 (5) 16:16 (5)	06:56 18:10	06:33 20:15	05:20 21:18
10	08:52 16:06	08:02 17:11	16:04 (5) 16:13 (5)	06:53 18:12	06:30 20:18	05:18 21:20
11	08:52 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:15 21:22	04:32 22:11
12	08:51 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:12
13	08:50 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12
14	08:49 16:13	07:53 17:20	06:43 18:21	06:20 20:26	05:09 21:28	04:31 22:13
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14
16	08:46 16:17	07:49 17:24	06:37 18:25	06:15 20:30	19:58 (9) 20:01 (9)	05:06 21:32
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	19:55 (9) 20:02 (9)	05:04 21:34
18	08:44 16:21	07:44 17:29	06:32 18:29	06:09 20:34	19:54 (9) 20:04 (9)	05:02 21:36
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	19:53 (9) 20:06 (9)	05:00 21:37
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:39	19:52 (9) 20:08 (9)	04:58 21:39
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	19:51 (9) 20:10 (9)	04:56 21:41
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	19:51 (9) 20:10 (9)	04:55 21:43
23	08:37 16:31	07:32 17:40	06:18 18:40	05:57 20:45	19:51 (9) 20:10 (9)	04:53 21:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	19:51 (9) 20:09 (9)	04:52 21:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	19:51 (9) 20:09 (9)	04:50 21:48
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	19:52 (9) 20:08 (9)	04:48 21:50
27	08:30 16:39	16:02 (5) 16:03 (5)	07:22 17:49	05:47 18:00 (13)	19:53 (9) 20:06 (9)	04:47 21:51
28	08:28 16:41	16:01 (5) 16:05 (5)	07:19 17:51	05:45 18:50	19:54 (9) 20:05 (9)	04:46 21:53
29	08:26 16:44	16:00 (5) 16:08 (5)	07:17 17:52	05:42 18:59 (13)	19:57 (9) 20:02 (9)	04:44 21:55
30	08:25 16:46	15:59 (5) 16:10 (5)	07:00 19:55	05:40 19:17 (13)	20:59	04:43 21:56
31	08:23 16:48	15:59 (5) 16:13 (5)	06:57 19:57	19:00 (13) 19:16 (13)		04:42 21:58
Potential sun hours	235	266	366	426	508	530
Total, worst case	38	167	144	206		
Sun reduction	0,11	0,19	0,40	0,47		
Oper. time red.	1,00	1,00	1,00	1,00		
Wind dir. red.	1,00	1,00	1,00	1,00		
Total reduction	0,11	0,19	0,40	0,47		
Total, real	4	32	58	96		

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Licupes - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (217)
 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 20:20	07:23 18:59	07:29 16:41	15:33 (5) 15:50
2	04:35 22:15	05:22 21:32	06:25 20:17	07:25 18:56	07:31 16:39	15:31 (5) 15:49
3	04:36 22:15	05:24 21:30	06:27 20:15	07:27 18:54	07:33 16:37	15:31 (5) 15:48
4	04:37 22:14	05:26 21:28	06:29 20:12	07:29 18:51	07:35 16:35	15:29 (5) 15:47
5	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	15:29 (5) 15:46
6	04:39 22:12	05:30 21:24	06:33 20:07	07:33 18:46	07:40 16:30	15:29 (5) 15:46
7	04:40 22:12	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	15:29 (5) 15:45
8	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	15:29 (5) 15:44
9	04:43 22:10	05:36 21:17	06:39 19:59	07:39 18:38	07:46 16:24	15:29 (5) 15:44
10	04:44 22:09	05:38 21:15	06:41 19:56	18:58 (13) 19:04 (13)	07:41 18:35	15:30 (5) 15:44
11	04:45 22:08	05:40 21:12	06:43 19:53	18:55 (13) 19:07 (13)	07:44 18:33	15:30 (5) 15:43
12	04:47 22:07	05:42 21:10	06:45 19:50	18:53 (13) 19:08 (13)	07:46 18:30	15:31 (5) 15:43
13	04:48 22:06	05:44 21:08	06:47 19:48	18:51 (13) 19:07 (13)	07:48 18:27	15:32 (5) 15:43
14	04:50 22:04	05:46 21:05	20:04 (9) 20:11 (9)	06:49 19:45	07:50 18:25	15:33 (5) 15:43
15	04:51 22:03	05:48 21:03	20:01 (9) 20:13 (9)	06:51 19:42	07:52 18:22	15:35 (5) 15:43
16	04:52 22:02	05:50 21:00	20:00 (9) 20:14 (9)	06:53 19:40	07:54 18:20	15:36 (5) 15:43
17	04:54 22:00	05:52 20:58	19:59 (9) 20:15 (9)	06:55 19:37	07:56 18:17	15:37 (5) 15:43
18	04:56 21:59	05:54 20:56	19:58 (9) 20:16 (9)	06:57 19:34	07:58 18:15	15:38 (5) 15:43
19	04:57 21:57	05:56 20:53	19:57 (9) 20:16 (9)	06:59 19:32	08:00 18:12	15:39 (5) 15:43
20	04:59 21:56	05:58 20:51	19:56 (9) 20:15 (9)	07:01 19:29	08:03 18:10	15:40 (5) 15:43
21	05:01 21:54	06:00 20:48	19:56 (9) 20:15 (9)	07:03 19:26	08:05 18:07	15:41 (5) 15:44
22	05:02 21:53	06:02 20:46	19:56 (9) 20:14 (9)	07:05 19:23	08:07 18:05	15:42 (5) 15:44
23	05:04 21:51	06:04 20:43	19:56 (9) 20:12 (9)	07:07 19:21	08:09 18:02	15:43 (5) 15:45
24	05:06 21:49	06:06 20:41	19:56 (9) 20:09 (9)	07:09 19:18	08:11 18:00	15:44 (5) 15:45
25	05:08 21:47	06:08 20:38	19:57 (9) 20:07 (9)	07:11 19:15	08:13 17:57	15:45 (5) 15:46
26	05:09 21:46	06:11 20:35	19:58 (9) 20:05 (9)	07:13 19:13	08:15 17:55	15:46 (5) 15:47
27	05:11 21:44	06:13 20:33	20:00 (9) 20:02 (9)	07:15 19:10	08:17 17:53	15:47 (5) 15:47
28	05:13 21:42	06:15 20:30	19:17 19:07	07:20 16:50	08:25 15:53	15:48 (5) 15:48
29	05:15 21:40	06:17 20:28	19:19 19:04	07:22 16:48	08:27 15:52	15:49 (5) 15:49
30	05:17 21:38	06:19 20:25	19:21 19:02	07:24 16:46	08:29 15:51	15:50 (5) 15:50
31	05:19 21:36	06:21 20:22		07:26 16:43	15:37 (5) 15:40 (5)	15:51 (5) 15:51
Potential sun hours	530	470	385	323	247	215
Total, worst case		190	165	3	207	
Sun reduction		0,51	0,46	0,28	0,08	
Oper. time red.		1,00	1,00	1,00	1,00	
Wind dir. red.		1,00	1,00	1,00	1,00	
Total reduction		0,51	0,46	0,28	0,08	
Total, real		97	76	1	16	

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Maizites - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (215)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:52	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:35 22:15	05:22 21:32	06:25 20:17	07:31 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:34	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:35 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07	04:40 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:44
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:10	06:53 18:12	06:30 20:17	05:18 21:20	04:32 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:11	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:19	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:49 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:42
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:05 21:32	04:30 22:14	04:52 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	04:54 22:00	05:52 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 17:28	06:32 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:56 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:15	08:19 15:57	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:49 20:51	04:48 21:50	04:31 22:17	05:09 21:45	06:10 20:35	07:13 19:12	08:15 18:15	08:21 15:55	08:57 15:47
27	08:30 16:39	07:21 17:48	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17	05:11 21:44	06:12 20:33	07:15 19:10	08:18 18:10	08:23 16:53	08:57 15:47
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:32 22:16	05:13 21:42	06:14 20:30	07:17 19:07	08:20 18:10	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:16 20:28	07:19 19:04	08:22 18:15	08:27 16:48	08:57 15:49
30	08:24 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:15	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:43		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Mazgi - Shadow Receptor: $1,0 \times 1,0$ Azimuth: $3,1^\circ$ Slope: $90,0^\circ$ (222)
 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	08:58	08:21	07:17	06:54	05:38	04:41	04:35	05:21	06:23	07:23	07:29	08:31
	15:53	16:50	17:53	19:59	21:02	22:00	22:16	21:35	20:20	18:59	16:41	15:50
2	08:57	08:19	07:14	06:52	05:35	04:40	04:36	05:23	06:25	07:25	07:31	08:33
	15:54	16:53	17:55	20:01	21:04	22:01	22:16	21:32	20:18	18:57	16:39	15:49
3	08:57	08:17	07:12	06:49	05:33	04:38	04:36	05:25	06:27	07:27	07:33	08:34
	15:56	16:55	17:58	20:03	21:06	22:02	22:15	21:30	20:15	18:54	16:37	15:48
4	08:57	08:15	07:09	06:46	05:31	04:37	04:37	05:27	06:29	07:29	07:36	08:36
	15:57	16:57	18:00	20:05	21:08	22:04	22:14	21:28	20:12	18:51	16:35	15:47
5	08:56	08:13	07:07	06:44	05:29	04:36	04:38	05:29	06:31	07:31	07:38	08:38
	15:58	16:59	18:02	20:07	21:10	22:05	22:14	21:26	20:10	18:49	16:33	15:47
6	08:56	08:11	07:04	06:41	05:26	04:36	04:39	05:31	06:33	07:34	07:40	08:39
	16:00	17:02	18:04	20:10	21:12	22:06	22:13	21:24	20:07	18:46	16:30	15:46
7	08:55	08:09	07:01	06:38	05:24	04:35	04:41	05:32	06:35	07:36	07:42	08:41
	16:01	17:04	18:06	20:12	21:14	22:07	22:12	21:22	20:04	18:43	16:28	15:45
8	08:54	08:07	06:59	06:36	05:22	04:34	04:42	05:34	06:37	07:38	07:44	08:42
	16:03	17:06	18:08	20:14	21:16	22:08	22:11	21:20	20:02	18:41	16:26	15:45
9	08:54	08:05	06:56	06:33	05:20	04:33	04:43	05:36	06:39	07:40	07:46	08:43
	16:04	17:08	18:11	20:16	21:18	22:09	22:10	21:17	19:59	18:38	16:24	15:44
10	08:53	08:03	06:53	06:31	05:18	04:33	04:44	05:38	06:41	07:42	07:49	08:45
	16:06	17:11	18:13	20:18	21:20	22:10	22:09	21:15	19:56	18:36	16:22	15:44
11	08:52	08:00	06:51	06:28	05:16	04:32	04:45	05:40	06:43	07:44	07:51	08:46
	16:08	17:13	18:15	20:20	21:22	22:11	22:08	21:13	19:53	18:33	16:20	15:43
12	08:51	07:58	06:48	06:25	05:14	04:32	04:47	05:42	06:45	07:46	07:53	08:47
	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	07:56	06:45	06:23	05:12	04:31	04:48	05:44	06:47	07:48	07:55	08:48
	16:11	17:18	18:19	20:24	21:26	22:13	22:06	21:08	19:48	18:28	16:16	15:43
14	08:49	07:54	06:43	06:20	05:10	04:31	04:50	05:47	06:49	07:50	07:57	08:50
	16:13	17:20	18:21	20:26	21:28	22:14	22:05	21:06	19:45	18:25	16:15	15:43
15	08:48	07:51	06:40	06:17	05:08	04:30	04:51	05:49	06:51	07:52	07:59	08:51
	16:15	17:22	18:23	20:28	21:30	22:14	22:03	21:03	19:43	18:23	16:13	15:43
16	08:47	07:49	06:37	06:15	05:06	04:30	04:53	05:51	06:53	07:54	08:02	08:52
	16:17	17:24	18:25	20:31	21:32	22:15	22:02	21:01	19:40	18:20	16:11	15:43
17	08:46	07:47	06:35	06:12	05:04	04:30	04:54	05:53	06:55	07:57	08:04	08:52
	16:19	17:27	18:28	20:33	21:34	22:16	22:01	20:58	19:37	18:17	16:09	15:43
18	08:44	07:44	06:32	06:10	05:02	04:30	04:56	05:55	06:57	07:59	08:06	08:53
	16:21	17:29	18:30	20:35	21:36	22:16	21:59	20:56	19:35	18:15	16:08	15:43
19	08:43	07:42	06:29	06:07	05:00	04:30	04:57	05:57	06:59	08:01	08:08	08:54
	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	08:42	07:39	06:27	06:05	04:58	04:30	04:59	05:59	07:01	08:03	08:10	08:55
	16:25	17:33	18:34	20:39	21:40	22:17	21:56	20:51	19:29	18:10	16:04	15:43
21	08:40	07:37	06:24	06:02	04:57	04:30	05:01	06:01	07:03	08:05	08:12	08:55
	16:27	17:36	18:36	20:41	21:42	22:17	21:55	20:49	19:26	18:07	16:03	15:44
22	08:39	07:34	06:21	06:00	04:55	04:30	05:02	06:03	07:05	08:07	08:14	08:56
	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	07:32	06:19	05:57	04:53	04:30	05:04	06:05	07:07	08:09	08:16	08:56
	16:31	17:40	18:40	20:45	21:45	22:17	21:51	20:43	19:21	18:03	16:00	15:45
24	08:35	07:30	06:16	05:55	04:52	04:31	05:06	06:07	07:09	08:12	08:18	08:57
	16:33	17:42	18:42	20:47	21:47	22:17	21:50	20:41	19:18	18:00	15:58	15:45
25	08:34	07:27	06:13	05:52	04:50	04:31	05:08	06:09	07:11	08:14	08:20	08:57
	16:35	17:44	18:44	20:49	21:49	22:17	21:48	20:38	19:16	17:58	15:57	15:46
26	08:32	07:25	06:11	05:50	04:49	04:32	05:10	06:11	07:13	08:16	08:22	08:58
	16:37	17:47	18:47	20:51	21:50	22:17	21:46	20:36	19:13	17:55	15:56	15:47
27	08:30	07:22	06:08	05:47	04:47	04:32	05:11	06:13	07:15	08:18	08:24	08:58
	16:39	17:49	18:49	20:54	21:52	22:17	21:44	20:33	19:10	17:53	15:54	15:48
28	08:29	07:19	06:05	05:45	04:46	04:33	05:13	06:15	07:17	08:20	08:26	08:58
	16:42	17:51	18:51	20:56	21:53	22:17	21:42	20:31	19:07	17:51	15:53	15:48
29	08:27		07:03	05:43	04:44	04:33	05:15	06:17	07:19	08:22	08:27	08:58
	16:44		19:53	20:58	21:55	22:17	21:40	20:28	19:05	17:48	15:52	15:49
30	08:25		07:00	05:40	04:43	04:34	05:17	06:19	07:21	08:25	08:29	08:58
	16:46		19:55	21:00	21:57	22:16	21:39	20:25	19:02	17:46	15:51	15:50
31	08:23		06:57		04:42		05:19	06:21		07:27		08:58
	16:48		19:57		21:58		21:37	20:23		16:44		15:52
Potential sun hours	234	266	366	426	509	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Mazmazgi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (216)
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	08:58 15:53	08:21 16:50	07:17 17:53	06:54 19:59	05:38 21:02	04:41 22:00	04:35 22:16	05:21 21:35	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 22:16	05:23 21:32	06:25 20:18	07:31 18:57	07:31 16:39	08:33 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 16:37	08:34 15:48
4	08:57 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:37 22:04	04:37 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:36 16:35	08:36 15:47
5	08:56 15:58	08:13 16:59	07:07 18:02	06:44 20:07	05:29 21:10	04:37 22:05	04:38 22:14	05:29 21:26	06:31 20:10	07:31 18:49	07:38 16:33	08:38 15:47
6	08:56 16:00	08:11 17:02	07:04 18:04	06:41 20:10	05:26 21:12	04:36 22:06	04:39 22:13	05:31 21:24	06:33 20:07	07:34 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 20:12	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:22	06:35 20:04	07:36 18:43	07:42 16:28	08:41 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	05:34 21:20	06:37 20:02	07:38 18:41	07:44 16:26	08:42 15:45
9	08:54 16:04	08:05 17:09	06:56 18:11	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	08:53 16:06	08:03 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:15	06:41 19:56	07:42 18:36	07:49 16:22	08:45 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 21:13	06:43 19:54	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	05:42 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	06:46 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	07:54 17:20	06:43 18:21	06:20 20:26	05:10 21:28	04:31 22:14	04:50 22:05	05:47 21:06	06:49 19:45	07:50 18:25	07:57 16:15	08:50 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	05:49 21:03	06:51 19:43	07:52 18:23	07:59 16:13	08:51 15:43
16	08:47 16:17	07:49 17:24	06:37 18:25	06:15 20:31	05:06 21:32	04:30 22:15	04:53 22:02	05:51 21:01	06:53 19:40	07:54 18:20	08:02 16:11	08:52 15:43
17	08:45 16:19	07:47 17:27	06:35 18:28	06:12 20:33	05:04 21:34	04:30 22:16	04:54 22:01	05:53 20:58	06:55 19:37	07:57 18:17	08:04 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:35	07:59 18:15	08:06 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 21:58	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 21:40	04:30 22:17	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:04	08:55 15:43
21	08:40 16:27	07:37 17:36	06:24 18:36	06:02 20:41	04:57 21:42	04:30 22:17	05:01 21:55	06:01 20:49	07:03 19:26	08:05 18:07	08:12 16:03	08:55 15:44
22	08:39 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	06:19 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 18:03	08:16 16:00	08:56 15:45
24	08:35 16:33	07:30 17:42	06:16 18:42	05:55 20:47	04:52 21:47	04:31 22:17	05:06 21:50	06:07 20:41	07:09 19:18	08:12 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 21:49	04:31 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:37	07:25 17:47	06:11 18:47	05:50 20:51	04:49 21:50	04:32 22:17	05:10 21:46	06:11 20:36	07:13 19:13	08:16 18:15	08:22 15:56	08:58 15:47
27	08:30 16:39	07:22 17:49	06:08 18:49	05:47 20:54	04:47 21:52	04:32 22:17	05:11 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:24 16:53	08:58 15:48
28	08:29 16:42	07:19 17:51	06:05 18:51	05:45 20:56	04:46 21:53	04:33 22:17	05:13 21:42	06:15 20:31	07:17 19:07	08:20 18:05	08:26 16:51	08:58 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:44 21:55	04:33 22:17	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:58 15:49
30	08:25 16:46		07:00 19:55	05:40 21:00	04:43 21:57	04:34 22:16	05:17 21:39	06:19 20:25	07:21 19:02	08:25 18:00	08:29 16:46	08:58 15:50
31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:37	06:21 20:23		07:27 18:55		08:58 15:52
Potential sun hours	234	266	366	426	509	530	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Mazpeķis as - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (221)
 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	08:58 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	04:39 22:01	04:35 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:33 15:49
3	08:57 15:55	08:17 16:55	07:12 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 16:37	08:34 15:48
4	08:57 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:37 22:04	04:37 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:47
5	08:56 15:58	08:13 16:59	07:07 18:02	06:44 20:07	05:29 21:10	04:36 22:05	04:38 22:14	05:28 21:26	06:31 20:10	07:31 18:49	07:38 16:33	08:38 15:46
6	08:56 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 16:30	08:39 15:46
7	08:55 16:01	08:09 17:04	07:01 18:06	06:38 20:12	05:24 21:14	04:35 22:07	04:40 22:12	05:32 21:22	06:35 20:04	07:36 18:43	07:42 16:28	08:41 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	05:34 21:19	06:37 20:02	07:38 18:41	07:44 16:26	08:42 15:45
9	08:54 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	05:36 21:17	06:39 19:59	07:40 18:38	07:46 16:24	08:43 15:44
10	08:53 16:06	08:03 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	07:49 16:22	08:45 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 21:13	06:43 19:53	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	04:31 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
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16	08:47 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 19:40	07:54 18:20	08:01 16:11	08:52 15:43
17	08:45 16:19	07:46 17:26	06:35 18:28	06:12 20:33	05:04 21:34	04:30 22:15	04:54 22:01	05:52 20:58	06:55 19:37	07:56 18:17	08:04 16:09	08:52 15:43
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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 21:58	05:57 20:53	06:59 19:32	08:01 18:12	08:08 16:06	08:54 15:43
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31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:27 18:00	07:27 16:44	08:58 15:51
Potential sun hours	234	266	366	426	509	530	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Mazpukes - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (223)
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 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:14	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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
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7	08:55 16:02	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 16:29	08:40 15:46
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22	08:38 16:29	07:34 17:38	06:21 18:38	06:00 20:43	04:55 21:43	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	08:16 16:00	08:56 15:45
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31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:27 18:59		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Noliktavas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (173)
 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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:52	07:14 17:55	06:51 20:01	05:35 21:04	04:39 22:00	04:35 22:15	05:22 21:32	06:25 20:17	07:31 18:56	07:31 16:39	08:32 15:49
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4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:34	08:35 15:47
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28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:32 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:10	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:10	08:27 16:48	08:57 15:49
30	08:25 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:10	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:43		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: OŠ i - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (177)
 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	07:16 17:53	16:55 (3) 17:13 (3)	06:54 19:59	20:04 (5) 21:59
2	08:57 15:54	08:19 16:53	07:14 17:55	16:56 (3) 17:12 (3)	06:51 20:01	20:04 (5) 22:00
3	08:56 15:55	08:17 16:55	07:11 17:57	16:58 (3) 17:10 (3)	06:49 20:03	20:05 (5) 22:02
4	08:56 15:57	08:15 16:57	07:09 17:59	17:00 (3) 17:07 (3)	06:46 20:05	20:05 (5) 22:03
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	20:06 (5) 22:04
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:26 21:12	20:07 (5) 22:05
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	20:09 (5) 22:07
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	20:11 (5) 22:08
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	20:18 (5) 22:09
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	05:18 21:20	20:19 (5) 22:10
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	20:20 (5) 22:11
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	20:21 (5) 22:12
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	20:22 (5) 22:13
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	20:23 (5) 22:14
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	20:24 (5) 22:15
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	20:25 (5) 22:16
17	08:45 16:19	07:46 17:26	06:34 18:27	17:56 (4) 17:59 (4)	06:12 20:32	20:26 (5) 22:17
18	08:44 16:21	07:44 17:29	06:32 18:29	17:53 (4) 18:01 (4)	06:10 20:34	20:27 (5) 22:18
19	08:42 16:23	07:41 17:31	06:29 18:31	17:51 (4) 18:03 (4)	06:07 20:36	20:28 (5) 22:19
20	08:41 16:25	07:39 17:33	16:59 (3) 17:02 (3)	06:26 18:34	06:04 20:38	20:29 (5) 22:20
21	08:40 16:27	07:36 17:35	16:58 (3) 17:05 (3)	06:24 18:36	06:02 20:41	20:30 (5) 22:21
22	08:38 16:29	07:34 17:37	16:56 (3) 17:07 (3)	06:21 18:38	05:59 20:43	20:31 (5) 22:22
23	08:36 16:31	07:32 17:40	16:54 (3) 17:10 (3)	06:18 18:40	05:57 20:45	20:32 (5) 22:23
24	08:35 16:33	07:29 17:42	16:53 (3) 17:12 (3)	06:16 18:42	05:54 20:47	20:33 (5) 22:24
25	08:33 16:35	07:27 17:44	16:54 (3) 17:14 (3)	06:13 18:44	05:52 20:49	20:34 (5) 22:25
26	08:32 16:37	07:24 17:46	16:54 (3) 17:15 (3)	06:10 18:46	05:50 20:51	20:35 (5) 22:26
27	08:30 16:39	07:22 17:49	16:54 (3) 17:14 (3)	06:08 18:48	05:47 20:53	20:36 (5) 22:27
28	08:28 16:42	07:19 17:51	16:54 (3) 17:13 (3)	06:05 18:50	05:45 20:55	20:37 (5) 22:28
29	08:26 16:44		07:02 19:52	18:48 (4) 19:05 (4)	05:42 20:57	20:38 (5) 22:29
30	08:25 16:46		07:00 19:55	18:50 (4) 19:03 (4)	05:40 20:59	20:39 (5) 22:30
31	08:23 16:48		06:57 19:57	18:53 (4) 18:59 (4)	05:42 21:57	20:40 (5) 22:31
Potential sun hours	235	266	366	426	508	529
Total, worst case		132	302	110	130	
Sun reduction		0,19	0,40	0,47	0,59	
Oper. time red.		1,00	1,00	1,00	1,00	
Wind dir. red.		1,00	1,00	1,00	1,00	
Total reduction		0,19	0,40	0,47	0,59	
Total, real		25	122	51	76	

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: OŠ i - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (177)
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	05:21	06:23	07:23	07:28	08:30
	22:15	21:34	20:20	18:59	16:41	15:50
2	04:36	05:23	06:25	07:25	07:31	08:32
	22:15	21:32	20:17	18:56	16:39	15:49
3	04:36	05:25	06:27	07:27	07:33	08:34
	22:14	21:30	20:14	18:54	16:37	15:48
4	04:37	05:26	06:29	07:29	07:35	08:35
	22:14	21:28	20:12	18:51	16:35	15:47
5	04:38	05:28	20:20 (5) 06:31	07:31	07:37	08:37
	22:13	21:26	9 20:29 (5) 20:09	18:48	16:32	15:46
6	04:39	05:30	20:18 (5) 06:33	07:33	07:39	08:39
	22:12	21:23	12 20:30 (5) 20:07	18:46	16:30	15:46
7	04:41	05:32	20:16 (5) 06:35	07:35	07:42	08:40
	22:12	21:21	15 20:31 (5) 20:04	18:43	16:28	15:45
8	04:42	05:34	20:15 (5) 06:37	07:37	07:44	08:41
	22:11	21:19	17 20:32 (5) 20:01	18:40	16:26	15:45
9	04:43	05:36	20:15 (5) 06:39	07:39	07:46	08:43
	22:10	21:17	18 20:33 (5) 19:58	18:38	16:24	15:44
10	04:44	05:38	20:14 (5) 06:41	07:41	17:34 (3) 07:48	08:44
	22:09	21:14	20 20:34 (5) 19:56	18:35	9 17:43 (3) 16:22	15:44
11	04:45	05:40	20:14 (5) 06:43	07:43	17:31 (3) 07:50	08:45
	22:08	21:12	20 20:34 (5) 19:53	18:33	14 17:45 (3) 16:20	15:43
12	04:47	05:42	20:12 (5) 06:45	18:47 (4) 07:46	17:29 (3) 07:52	08:47
	22:07	21:10	21 20:33 (5) 19:50	3 18:50 (4) 18:30	17 17:46 (3) 16:18	15:43
13	04:48	05:44	20:12 (5) 06:47	18:41 (4) 07:48	17:28 (3) 07:55	08:48
	22:05	21:07	21 20:33 (5) 19:48	12 18:53 (4) 18:27	18 17:46 (3) 16:16	15:43
14	04:50	05:46	20:12 (5) 06:49	18:39 (4) 07:50	17:27 (3) 07:57	08:49
	22:04	21:05	20 20:32 (5) 19:45	16 18:55 (4) 18:25	20 17:47 (3) 16:14	15:43
15	04:51	05:48	20:13 (5) 06:51	18:37 (4) 07:52	17:26 (3) 07:59	08:50
	22:03	21:03	17 20:30 (5) 19:42	19 18:56 (4) 18:22	21 17:47 (3) 16:13	15:43
16	04:53	05:50	20:13 (5) 06:53	18:36 (4) 07:54	17:26 (3) 08:01	08:51
	22:02	21:00	15 20:28 (5) 19:40	20 18:56 (4) 18:20	21 17:47 (3) 16:11	15:43
17	04:54	05:52	20:13 (5) 06:55	18:35 (4) 07:56	17:26 (3) 08:03	08:52
	22:00	20:58	13 20:26 (5) 19:37	22 18:57 (4) 18:17	19 17:45 (3) 16:09	15:43
18	04:56	05:54	20:14 (5) 06:57	18:34 (4) 07:58	17:26 (3) 08:05	08:53
	21:59	20:55	10 20:24 (5) 19:34	23 18:57 (4) 18:15	16 17:42 (3) 16:07	15:43
19	04:57	05:56	20:15 (5) 06:59	18:33 (4) 08:00	17:26 (3) 08:07	08:53
	21:57	20:53	7 20:22 (5) 19:31	24 18:57 (4) 18:12	13 17:39 (3) 16:06	15:43
20	04:59	05:58	20:16 (5) 07:01	18:33 (4) 08:02	17:27 (3) 08:09	08:54
	21:56	20:51	2 20:18 (5) 19:29	23 18:56 (4) 18:10	11 17:38 (3) 16:04	15:43
21	05:01	06:00	07:03	18:33 (4) 08:05	17:28 (3) 08:11	08:55
	21:54	20:48	19:26	23 18:56 (4) 18:07	7 17:35 (3) 16:03	15:44
22	05:02	06:02	07:05	18:33 (4) 08:07	17:30 (3) 08:13	08:55
	21:52	20:46	19:23	20 18:53 (4) 18:05	2 17:32 (3) 16:01	15:44
23	05:04	06:04	07:07	18:33 (4) 08:09		08:15
	21:51	20:43	19:21	17 18:50 (4) 18:02		16:00
24	05:06	06:07	07:09	18:34 (4) 08:11		08:17
	21:49	20:40	19:18	13 18:47 (4) 18:00		15:58
25	05:08	06:09	07:11	18:35 (4) 07:13		08:19
	21:47	20:38	19:15	10 18:45 (4) 16:57		15:57
26	05:09	06:11	07:13	18:37 (4) 07:15		08:21
	21:46	20:35	19:13	5 18:42 (4) 16:55		15:56
27	05:11	06:13	07:15			08:23
	21:44	20:33	19:10			15:54
28	05:13	06:15	07:17			08:25
	21:42	20:30	19:07			15:53
29	05:15	06:17	07:19			08:27
	21:40	20:28	19:04			15:52
30	05:17	06:19	07:21			08:29
	21:38	20:25	19:02			15:51
31	05:19	06:21				08:57
	21:36	20:22				15:51
Potential sun hours	530	470	385	323	247	216
Total, worst case		237	250	188		
Sun reduction		0,51	0,46	0,28		
Oper. time red.		1,00	1,00	1,00		
Wind dir. red.		1,00	1,00	1,00		
Total reduction		0,51	0,46	0,28		
Total, real		121	116	53		

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Papardes - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (229)
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	08:21	07:17	06:54	05:38	04:41	04:35	05:21	06:23	07:23	07:29	08:31
	15:53	16:51	17:53	19:59	21:02	21:59	22:16	21:34	20:20	18:59	16:42	15:50
2	08:57	08:19	07:14	06:52	05:36	04:40	04:36	05:23	06:25	07:25	07:31	08:32
	15:55	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	08:17	07:12	06:49	05:33	04:39	04:37	05:25	06:27	07:27	07:33	08:34
	15:56	16:55	17:58	20:03	21:06	22:02	22:15	21:30	20:15	18:54	16:37	15:48
4	08:56	08:15	07:09	06:46	05:31	04:38	04:38	05:27	06:29	07:29	07:35	08:36
	15:57	16:57	18:00	20:05	21:08	22:03	22:14	21:28	20:12	18:51	16:35	15:48
5	08:56	08:13	07:06	06:44	05:29	04:37	04:39	05:29	06:31	07:31	07:38	08:37
	15:59	17:00	18:02	20:07	21:10	22:04	22:13	21:26	20:09	18:49	16:33	15:47
6	08:55	08:11	07:04	06:41	05:27	04:36	04:40	05:31	06:33	07:33	07:40	08:39
	16:00	17:02	18:04	20:09	21:12	22:06	22:13	21:24	20:07	18:46	16:31	15:46
7	08:55	08:09	07:01	06:39	05:24	04:35	04:41	05:33	06:35	07:36	07:42	08:40
	16:02	17:04	18:06	20:12	21:14	22:07	22:12	21:21	20:04	18:43	16:29	15:46
8	08:54	08:07	06:59	06:36	05:22	04:34	04:42	05:35	06:37	07:38	07:44	08:42
	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	08:05	06:56	06:33	05:20	04:34	04:43	05:37	06:39	07:40	07:46	08:43
	16:05	17:09	18:11	20:16	21:18	22:09	22:10	21:17	19:59	18:38	16:24	15:44
10	08:53	08:02	06:53	06:31	05:18	04:33	04:45	05:39	06:41	07:42	07:48	08:44
	16:06	17:11	18:13	20:18	21:20	22:10	22:09	21:15	19:56	18:36	16:22	15:44
11	08:52	08:00	06:51	06:28	05:16	04:32	04:46	05:41	06:43	07:44	07:51	08:46
	16:08	17:13	18:15	20:20	21:22	22:11	22:08	21:12	19:53	18:33	16:20	15:44
12	08:51	07:58	06:48	06:25	05:14	04:32	04:47	05:43	06:45	07:46	07:53	08:47
	16:10	17:15	18:17	20:22	21:24	22:12	22:07	21:10	19:51	18:30	16:19	15:43
13	08:50	07:56	06:45	06:23	05:12	04:31	04:49	05:45	06:47	07:48	07:55	08:48
	16:12	17:18	18:19	20:24	21:26	22:13	22:06	21:08	19:48	18:28	16:17	15:43
14	08:49	07:53	06:43	06:20	05:10	04:31	04:50	05:47	06:49	07:50	07:57	08:49
	16:13	17:20	18:21	20:26	21:28	22:13	22:04	21:05	19:45	18:25	16:15	15:43
15	08:48	07:51	06:40	06:18	05:08	04:31	04:51	05:49	06:51	07:52	07:59	08:50
	16:15	17:22	18:23	20:28	21:30	22:14	22:03	21:03	19:43	18:23	16:13	15:43
16	08:46	07:49	06:37	06:15	05:06	04:31	04:53	05:51	06:53	07:54	08:01	08:51
	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	07:46	06:35	06:12	05:04	04:30	04:55	05:53	06:55	07:56	08:03	08:52
	16:19	17:27	18:28	20:32	21:34	22:15	22:00	20:58	19:37	18:18	16:09	15:43
18	08:44	07:44	06:32	06:10	05:02	04:30	04:56	05:55	06:57	07:59	08:05	08:53
	16:21	17:29	18:30	20:35	21:36	22:16	21:59	20:56	19:35	18:15	16:08	15:43
19	08:43	07:42	06:29	06:07	05:00	04:30	04:58	05:57	06:59	08:01	08:08	08:54
	16:23	17:31	18:32	20:37	21:38	22:16	21:57	20:53	19:32	18:13	16:06	15:43
20	08:41	07:39	06:27	06:05	04:59	04:30	04:59	05:59	07:01	08:03	08:10	08:54
	16:25	17:33	18:34	20:39	21:39	22:16	21:56	20:51	19:29	18:10	16:05	15:44
21	08:40	07:37	06:24	06:02	04:57	04:30	05:01	06:01	07:03	08:05	08:12	08:55
	16:27	17:36	18:36	20:41	21:41	22:17	21:54	20:48	19:26	18:08	16:03	15:44
22	08:38	07:34	06:21	06:00	04:55	04:31	05:03	06:03	07:05	08:07	08:14	08:56
	16:29	17:38	18:38	20:43	21:43	22:17	21:53	20:46	19:24	18:05	16:01	15:45
23	08:37	07:32	06:19	05:57	04:54	04:31	05:04	06:05	07:07	08:09	08:16	08:56
	16:31	17:40	18:40	20:45	21:45	22:17	21:51	20:43	19:21	18:03	16:00	15:45
24	08:35	07:29	06:16	05:55	04:52	04:31	05:06	06:07	07:09	08:11	08:18	08:57
	16:33	17:42	18:42	20:47	21:47	22:17	21:49	20:41	19:18	18:00	15:59	15:46
25	08:34	07:27	06:13	05:52	04:50	04:31	05:08	06:09	07:11	08:14	08:20	08:57
	16:35	17:44	18:44	20:49	21:48	22:17	21:48	20:38	19:16	17:58	15:57	15:46
26	08:32	07:24	06:11	05:50	04:49	04:32	05:10	06:11	07:13	08:16	08:22	08:57
	16:38	17:47	18:46	20:51	21:50	22:17	21:46	20:36	19:13	17:55	15:56	15:47
27	08:30	07:22	06:08	05:47	04:47	04:32	05:12	06:13	07:15	08:18	08:23	08:57
	16:40	17:49	18:49	20:53	21:52	22:17	21:44	20:33	19:10	17:53	15:55	15:48
28	08:28	07:19	06:05	05:45	04:46	04:33	05:13	06:15	07:17	08:20	08:25	08:58
	16:42	17:51	18:51	20:55	21:53	22:17	21:42	20:31	19:07	17:51	15:54	15:49
29	08:27		07:03	05:43	04:45	04:34	05:15	06:17	07:19	08:22	08:27	08:58
	16:44		19:53	20:58	21:55	22:16	21:40	20:28	19:05	17:48	15:52	15:50
30	08:25		07:00	05:40	04:43	04:34	05:17	06:19	07:21	08:24	08:29	08:58
	16:46		19:55	21:00	21:56	22:16	21:38	20:25	19:02	17:46	15:51	15:51
31	08:23		06:57		04:42		05:19	06:21		07:27		08:57
	16:48		19:57		21:58		21:36	20:23		16:44		15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Pieduri - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (203)
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	08:21	07:16	06:54	05:38			04:41	04:35		05:21	20:34 (3)	06:23	07:23	07:28	08:30
	15:53	16:50	17:53	19:59	21:01			21:59	22:15		21:34	22	20:56 (3)	20:20	18:59	16:41
2	08:57	08:19	07:14	06:52	05:35			04:40	04:36		05:23		20:33 (3)	06:25	07:25	07:31
	15:54	16:53	17:55	20:01	21:03			22:00	22:15		21:32	22	20:55 (3)	20:17	18:56	16:39
3	08:56	08:17	07:11	06:49	05:33			04:39	04:37		05:25		20:34 (3)	06:27	07:27	07:33
	15:56	16:55	17:57	20:03	21:06			22:02	22:14		21:30	21	20:55 (3)	20:14	18:54	16:37
4	08:56	08:15	07:09	06:46	05:31		20:31 (3)	04:38	04:37		05:27		20:34 (3)	06:29	07:29	07:35
	15:57	16:57	17:59	20:05	21:08	4	20:35 (3)	22:03	22:14		21:28	20	20:54 (3)	20:12	18:51	16:35
5	08:56	08:13	07:06	06:44	05:29		20:28 (3)	04:37	04:38		05:28		20:35 (3)	06:31	07:31	07:37
	15:58	16:59	18:02	20:07	21:10	9	20:37 (3)	22:04	22:13		21:26	17	20:52 (3)	20:09	18:48	16:32
6	08:55	08:11	07:04	06:41	05:26		20:27 (3)	04:36	04:40		05:30		20:36 (3)	06:33	07:33	07:39
	16:00	17:02	18:04	20:09	21:12	12	20:39 (3)	22:05	22:12		21:23	14	20:49 (3)	20:07	18:46	16:30
7	08:54	08:09	07:01	06:38	05:24		20:26 (3)	04:35	04:41		05:32		20:36 (3)	06:35	07:35	07:42
	16:01	17:04	18:06	20:11	21:14	14	20:40 (3)	22:06	22:11		21:21	11	20:47 (3)	20:04	18:43	16:28
8	08:54	08:06	06:58	06:36	05:22		20:25 (3)	04:34	04:42		05:34		20:38 (3)	06:37	07:37	07:44
	16:03	17:06	18:08	20:13	21:16	17	20:42 (3)	22:08	22:11		21:19	7	20:45 (3)	20:01	18:41	16:26
9	08:53	08:04	06:56	06:33	05:20		20:24 (3)	04:33	04:43		05:36		20:41 (3)	06:39	07:39	07:46
	16:04	17:08	18:10	20:15	21:18	20	20:44 (3)	22:09	22:10		21:17	2	20:43 (3)	19:58	18:38	16:24
10	08:52	08:02	06:53	06:30	05:18		20:23 (3)	04:33	04:44		05:38			06:41	07:41	07:48
	16:06	17:11	18:12	20:17	21:20	22	20:45 (3)	22:10	22:09		21:14			19:56	18:35	16:22
11	08:51	08:00	06:50	06:28	05:16		20:23 (3)	04:32	04:46		05:40			06:43	07:43	07:50
	16:08	17:13	18:15	20:20	21:22	22	20:45 (3)	22:11	22:08		21:12			19:53	18:33	16:20
12	08:50	07:58	06:48	06:25	05:14		20:22 (3)	04:32	04:47		05:42			06:45	07:46	07:52
	16:10	17:15	18:17	20:22	21:24	23	20:45 (3)	22:11	22:06		21:10			19:50	18:30	16:18
13	08:49	07:55	06:45	06:22	05:12		20:23 (3)	04:31	04:48		05:44			06:47	07:48	07:55
	16:11	17:17	18:19	20:24	21:26	23	20:46 (3)	22:12	22:05		21:07			19:48	18:27	16:16
14	08:48	07:53	06:42	06:20	05:10		20:23 (3)	04:31	04:50		05:46			06:49	07:50	07:57
	16:13	17:20	18:21	20:26	21:28	22	20:45 (3)	22:13	22:04		21:05			19:45	18:25	16:15
15	08:47	07:51	06:40	06:17	05:08		20:23 (3)	04:31	04:51		05:48			06:51	07:52	07:59
	16:15	17:22	18:23	20:28	21:30	22	20:45 (3)	22:14	22:03		21:03			19:42	18:22	16:13
16	08:46	07:48	06:37	06:15	05:06		20:23 (3)	04:30	04:53		05:50			06:53	07:54	08:01
	16:17	17:24	18:25	20:30	21:32	22	20:45 (3)	22:14	22:01		21:00			19:40	18:20	16:11
17	08:45	07:46	06:34	06:12	05:04		20:24 (3)	04:30	04:54		05:52			06:55	07:56	08:03
	16:19	17:26	18:27	20:32	21:33	21	20:45 (3)	22:15	22:00		20:58			19:37	18:17	16:09
18	08:44	07:44	06:32	06:10	05:02		20:24 (3)	04:30	04:56	20:41 (3)	05:54			06:57	07:58	08:05
	16:21	17:29	18:29	20:34	21:35	20	20:44 (3)	22:15	21:59	6	20:47 (3)			19:34	18:15	16:08
19	08:42	07:41	06:29	06:07	05:00		20:25 (3)	04:30	04:57		20:39 (3)			06:59	08:00	08:07
	16:23	17:31	18:32	20:36	21:37	19	20:44 (3)	22:16	21:57	10	20:49 (3)			19:31	18:12	16:06
20	08:41	07:39	06:26	06:04	04:58		20:25 (3)	04:30	04:59		20:38 (3)			07:01	08:02	08:09
	16:25	17:33	18:34	20:38	21:39	19	20:44 (3)	22:16	21:56	13	20:51 (3)			19:29	18:10	16:04
21	08:39	07:36	06:24	06:02	04:57		20:26 (3)	04:30	05:01		20:37 (3)			07:03	08:05	08:11
	16:27	17:35	18:36	20:41	21:41	17	20:43 (3)	22:16	21:54	14	20:51 (3)			19:26	18:07	16:03
22	08:38	07:34	06:21	05:59	04:55		20:26 (3)	04:30	05:02		20:36 (3)			07:05	08:07	08:13
	16:29	17:38	18:38	20:43	21:43	16	20:42 (3)	22:17	21:52	17	20:53 (3)			19:23	18:05	16:01
23	08:36	07:32	06:18	05:57	04:53		20:28 (3)	04:31	05:04		20:35 (3)			07:07	08:09	08:15
	16:31	17:40	18:40	20:45	21:44	14	20:42 (3)	22:17	21:51	18	20:53 (3)			19:21	18:02	16:00
24	08:35	07:29	06:16	05:55	04:52		20:29 (3)	04:31	05:06		20:35 (3)			07:09	08:11	08:17
	16:33	17:42	18:42	20:47	21:46	11	20:40 (3)	22:17	21:49	19	20:54 (3)			19:18	18:00	15:58
25	08:33	07:27	06:13	05:52	04:50		20:31 (3)	04:31	05:08		20:35 (3)			07:11	07:13	08:19
	16:35	17:44	18:44	20:49	21:48	8	20:39 (3)	22:17	21:47	20	20:55 (3)			19:15	16:58	15:57
26	08:32	07:24	06:10	05:50	04:49		20:34 (3)	04:32	05:10		20:34 (3)			07:13	07:15	08:21
	16:37	17:46	18:46	20:51	21:50	2	20:36 (3)	22:17	21:45	21	20:55 (3)			19:13	16:55	15:56
27	08:30	07:22	06:08	05:47	04:47			04:32	05:11		20:34 (3)			07:15	07:18	08:23
	16:39	17:49	18:48	20:53	21:51			22:17	21:44	21	20:55 (3)			19:10	16:53	15:54
28	08:28	07:19	06:05	05:45	04:46			04:33	05:13		20:34 (3)			07:17	07:20	08:25
	16:42	17:51	18:50	20:55	21:53			22:16	21:42	22	20:56 (3)			19:07	16:50	15:53
29	08:26		07:02	05:42	04:44			04:33	05:15		20:33 (3)			07:19	07:22	08:27
	16:44		19:52	20:57	21:54			22:16	21:40	22	20:55 (3)			19:04	16:48	15:52
30	08:24		07:00	05:40	04:43			04:34	05:17		20:33 (3)			07:21	07:24	08:29
	16:46		19:55	20:59	21:56			22:16	21:38	23	20:56 (3)			19:02	16:46	15:51
31	08:23			06:57	04:42				05:19		20:33 (3)				07:26	
	16:48			19:57	21:57				21:36	23	20:56 (3)				16:43	
Potential sun hours	235	266	366	426	508			529	530		470		385	324	247	216
Total, worst case					379				249		136					
Sun reduction					0,59				0,48		0,51					
Oper. time red.					1,00				1,00		1,00					
Wind dir. red.					1,00				1,00		1,00					
Total reduction					0,59				0,48		0,51					
Total, real					223				119		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)
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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

Calculation: Flickering_Vestas_V162 Shadow receptor: Pienenes - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (201)
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	08:21	07:17	06:54	05:38	04:41	04:35	05:21	06:23	07:23	07:29	08:30
	15:53	16:51	17:53	19:59	21:01	21:59	22:15	21:34	20:20	18:59	16:41	15:50
2	08:57	08:19	07:14	06:52	05:36	04:40	04:36	05:23	06:25	07:25	07:31	08:32
	15:54	16:53	17:55	20:01	21:04	22:00	22:15	21:32	20:17	18:57	16:39	15:49
3	08:56	08:17	07:11	06:49	05:33	04:39	04:37	05:25	06:27	07:27	07:33	08:34
	15:56	16:55	17:57	20:03	21:06	22:02	22:14	21:30	20:15	18:54	16:37	15:48
4	08:56	08:15	07:09	06:46	05:31	04:38	04:38	05:27	06:29	07:29	07:35	08:35
	15:57	16:57	18:00	20:05	21:08	22:03	22:14	21:28	20:12	18:51	16:35	15:48
5	08:56	08:13	07:06	06:44	05:29	04:37	04:39	05:29	06:31	07:31	07:37	08:37
	15:58	17:00	18:02	20:07	21:10	22:04	22:13	21:26	20:09	18:49	16:33	15:47
6	08:55	08:11	07:04	06:41	05:27	04:36	04:40	05:31	06:33	07:33	07:40	08:39
	16:00	17:02	18:04	20:09	21:12	22:05	22:12	21:23	20:07	18:46	16:30	15:46
7	08:54	08:09	07:01	06:38	05:24	04:35	04:41	05:33	06:35	07:35	07:42	08:40
	16:01	17:04	18:06	20:11	21:14	22:07	22:12	21:21	20:04	18:43	16:28	15:45
8	08:54	08:07	06:58	06:36	05:22	04:34	04:42	05:35	06:37	07:37	07:44	08:42
	16:03	17:06	18:08	20:13	21:16	22:08	22:11	21:19	20:01	18:41	16:26	15:45
9	08:53	08:04	06:56	06:33	05:20	04:34	04:43	05:37	06:39	07:39	07:46	08:43
	16:05	17:09	18:10	20:16	21:18	22:09	22:10	21:17	19:59	18:38	16:24	15:44
10	08:52	08:02	06:53	06:30	05:18	04:33	04:44	05:39	06:41	07:42	07:48	08:44
	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	08:51	08:00	06:51	06:28	05:16	04:32	04:46	05:41	06:43	07:44	07:50	08:45
	16:08	17:13	18:15	20:20	21:22	22:11	22:08	21:12	19:53	18:33	16:20	15:44
12	08:50	07:58	06:48	06:25	05:14	04:32	04:47	05:43	06:45	07:46	07:53	08:47
	16:10	17:15	18:17	20:22	21:24	22:11	22:07	21:10	19:51	18:30	16:18	15:43
13	08:50	07:55	06:45	06:23	05:12	04:31	04:48	05:45	06:47	07:48	07:55	08:48
	16:11	17:18	18:19	20:24	21:26	22:12	22:05	21:08	19:48	18:28	16:17	15:43
14	08:48	07:53	06:43	06:20	05:10	04:31	04:50	05:47	06:49	07:50	07:57	08:49
	16:13	17:20	18:21	20:26	21:28	22:13	22:04	21:05	19:45	18:25	16:15	15:43
15	08:47	07:51	06:40	06:17	05:08	04:31	04:51	05:49	06:51	07:52	07:59	08:50
	16:15	17:22	18:23	20:28	21:30	22:14	22:03	21:03	19:42	18:22	16:13	15:43
16	08:46	07:49	06:37	06:15	05:06	04:30	04:53	05:51	06:53	07:54	08:01	08:51
	16:17	17:24	18:25	20:30	21:32	22:14	22:02	21:00	19:40	18:20	16:11	15:43
17	08:45	07:46	06:35	06:12	05:04	04:30	04:54	05:53	06:55	07:56	08:03	08:52
	16:19	17:27	18:27	20:32	21:34	22:15	22:00	20:58	19:37	18:17	16:09	15:43
18	08:44	07:44	06:32	06:10	05:02	04:30	04:56	05:55	06:57	07:58	08:05	08:53
	16:21	17:29	18:30	20:34	21:35	22:15	21:59	20:56	19:34	18:15	16:08	15:43
19	08:42	07:41	06:29	06:07	05:00	04:30	04:58	05:57	06:59	08:00	08:07	08:53
	16:23	17:31	18:32	20:36	21:37	22:16	21:57	20:53	19:32	18:12	16:06	15:43
20	08:41	07:39	06:27	06:05	04:59	04:30	04:59	05:59	07:01	08:03	08:09	08:54
	16:25	17:33	18:34	20:39	21:39	22:16	21:56	20:51	19:29	18:10	16:04	15:44
21	08:40	07:37	06:24	06:02	04:57	04:30	05:01	06:01	07:03	08:05	08:11	08:55
	16:27	17:35	18:36	20:41	21:41	22:16	21:54	20:48	19:26	18:07	16:03	15:44
22	08:38	07:34	06:21	06:00	04:55	04:30	05:03	06:03	07:05	08:07	08:13	08:55
	16:29	17:38	18:38	20:43	21:43	22:17	21:53	20:46	19:24	18:05	16:01	15:45
23	08:37	07:32	06:19	05:57	04:53	04:31	05:04	06:05	07:07	08:09	08:15	08:56
	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	07:29	06:16	05:55	04:52	04:31	05:06	06:07	07:09	08:11	08:17	08:56
	16:33	17:42	18:42	20:47	21:46	22:17	21:49	20:41	19:18	18:00	15:58	15:46
25	08:33	07:27	06:13	05:52	04:50	04:31	05:08	06:09	07:11	08:13	08:19	08:57
	16:35	17:44	18:44	20:49	21:48	22:17	21:47	20:38	19:15	17:58	15:57	15:46
26	08:32	07:24	06:10	05:50	04:49	04:32	05:10	06:11	07:13	08:16	08:21	08:57
	16:37	17:47	18:46	20:51	21:50	22:17	21:46	20:35	19:13	17:55	15:56	15:47
27	08:30	07:22	06:08	05:47	04:47	04:32	05:12	06:13	07:15	08:18	08:23	08:57
	16:40	17:49	18:48	20:53	21:51	22:17	21:44	20:33	19:10	17:53	15:55	15:48
28	08:28	07:19	06:05	05:45	04:46	04:33	05:13	06:15	07:17	08:20	08:25	08:57
	16:42	17:51	18:50	20:55	21:53	22:16	21:42	20:30	19:07	17:51	15:53	15:49
29	08:26		07:02	05:43	04:45	04:34	05:15	06:17	07:19	08:22	08:27	08:57
	16:44		19:53	20:57	21:54	22:16	21:40	20:28	19:05	17:48	15:52	15:50
30	08:25		07:00	05:40	04:43	04:34	05:17	06:19	07:21	08:24	08:29	08:57
	16:46		19:55	20:59	21:56	22:16	21:38	20:25	19:02	17:46	15:51	15:51
31	08:23		06:57		04:42		05:19	06:21		07:26		08:57
	16:48		19:57		21:57		21:36	20:22		16:44		15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Pildavas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (218)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:05	04:39 22:01	04:37 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	05:31 21:07	04:38 22:03	04:37 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:35 15:47
5	08:55 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:29 21:10	04:37 22:04	04:38 22:13	05:28 21:25	06:31 20:09	07:31 18:48	07:37 16:32	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 22:05	04:40 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:08 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:41 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:41 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	04:34 22:07	04:42 22:10	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:09	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:10	04:46 22:07	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	04:32 22:11	04:47 22:06	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:12 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:54 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 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 16:14	08:49 15:43
15	08:47 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	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:31	04:30 22:14	04:53 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	04:54 22:00	05:52 20:58	06:55 19:37	07:56 18:17	08:03 16:09	08:52 15:43
18	08:43 16:21	07:44 17:29	06:32 18:29	06:10 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
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22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:16	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:31 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:31 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:07 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:15	08:19 15:57	08:56 15:46
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27	08:30 16:39	07:21 17:49	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:16	05:11 21:44	06:13 20:33	07:15 19:10	08:17 18:10	08:23 16:53	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:19 18:10	08:25 16:50	08:57 15:49
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:21 18:10	08:27 16:48	08:57 15:49
30	08:24 16:46		07:00 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:22 18:10	08:28 16:46	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:10		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Platmani - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (225)
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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:14	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
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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 16:19	08:47 15:43
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21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:32 22:17	05:08 21:47	06:09 20:38	07:11 19:16	08:13 18:08	08:20 16:58	08:57 15:46
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29	08:27 16:44		07:03 19:53	05:43 20:57	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:57 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	08:24 18:00	08:29 16:46	08:57 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 18:59		08:57 15:52
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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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Pludoni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (236)
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
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3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:39 22:01	04:37 22:14	05:25 21:30	06:27 20:14	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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:35 15:47
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6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:05	04:40 22:12	05:31 21:23	06:33 20:07	07:33 18:46	07:39 16:30	08:38 15:46
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15	08:47 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	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:51 21:00	06:53 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 21:33	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 18:29	06:10 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:55 20:55	06:57 19:34	07:58 18:15	08:05 16:08	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 22:16	04:58 21:57	05:57 20:53	06:59 19:32	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:05 20:38	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:44
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:16	05:01 21:54	06:01 20:48	07:03 19:26	08:05 18:07	08:11 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 22:16	05:03 21:52	06:03 20:46	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:45
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:02	08:15 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 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 16:58	08:19 15:57	08:56 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	04:49 21:49	04:32 22:17	05:10 21:45	06:11 20:35	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 22:16	05:11 21:44	06:13 20:33	07:15 19:10	08:18 16:53	08:23 15:55	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 16:51	08:25 15:53	08:57 15:49
29	08:26 16:44		07:02 19:52	05:43 20:57	04:45 21:54	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 16:48	08:27 15:52	08:57 15:50
30	08:24 16:46		07:00 19:55	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 16:46	08:29 15:51	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 16:44		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Porini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (206)
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 21:01	19:10 (3) 20:11 (6)
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:04	19:55 (6) 20:08 (6)
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	19:56 (6) 20:07 (6)
4	08:56 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	20:01 (6) 20:02 (6)
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	19:15 (3) 19:28 (3)	05:29 21:10
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	19:11 (3) 19:31 (3)	05:26 21:12
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	19:09 (3) 19:33 (3)	05:24 21:14
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	19:07 (3) 19:34 (3)	05:22 21:16
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	19:05 (3) 19:35 (3)	05:20 21:18
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	19:04 (3) 19:36 (3)	05:18 21:20
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	19:02 (3) 19:36 (3)	05:16 21:22
12	08:50 16:10	07:58 17:15	06:48 18:17	06:25 20:22	19:02 (3) 19:37 (3)	05:14 21:24
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	19:00 (3) 19:37 (3)	05:12 21:26
14	08:48 16:13	07:53 17:20	06:43 18:21	06:20 20:26	19:00 (3) 19:38 (3)	05:10 21:28
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	18:59 (3) 19:38 (3)	05:08 21:30
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	18:59 (3) 19:38 (3)	05:06 21:32
17	08:45 16:19	07:46 17:26	06:35 18:27	06:12 20:32	18:58 (3) 19:37 (3)	05:04 21:34
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	18:58 (3) 20:04 (6)	05:02 21:35
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	18:58 (3) 20:06 (6)	05:00 21:37
20	08:41 16:25	07:39 17:33	06:26 18:34	06:05 20:38	18:58 (3) 20:08 (6)	04:58 21:39
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	18:58 (3) 20:09 (6)	04:57 21:41
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	18:58 (3) 20:12 (6)	04:55 21:43
23	08:37 16:31	07:32 17:40	06:18 18:40	05:57 20:45	18:59 (3) 20:14 (6)	04:53 21:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 20:47	18:59 (3) 20:14 (6)	04:52 21:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	19:00 (3) 20:14 (6)	04:50 21:48
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	19:01 (3) 20:14 (6)	04:49 21:50
27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	19:01 (3) 20:13 (6)	04:47 21:51
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	19:03 (3) 20:13 (6)	04:46 21:53
29	08:26 16:44		07:02 19:52	05:42 20:57	19:05 (3) 20:12 (6)	04:44 21:54
30	08:25 16:46		07:00 19:55	05:40 20:59	19:07 (3) 20:12 (6)	04:43 21:56
31	08:23 16:48		06:57 19:57		04:42 21:57	
Potential sun hours	235	266	366	426	508	529
Total, worst case				1055	55	577
Sun reduction				0,47	0,59	0,57
Oper. time red.				1,00	1,00	1,00
Wind dir. red.				1,00	1,00	1,00
Total reduction				0,47	0,59	0,57
Total, real				492	32	329

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Porini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (206)
 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	21:06 (4)	05:21		06:23	19:01 (3)	07:23	07:29	08:30
	22:15	22	21:28 (4)	21:34	20:20	34	19:35 (3)	18:59	15:50
2	04:36	21:07 (4)	05:23		06:25	19:02 (3)	07:25	07:31	08:32
	22:15	20	21:27 (4)	21:32	20:17	32	19:34 (3)	18:56	15:49
3	04:37	21:08 (4)	05:25		06:27	19:03 (3)	07:27	07:33	08:34
	22:14	19	21:27 (4)	21:30	20:15	30	19:33 (3)	18:54	15:48
4	04:37	21:09 (4)	05:27		06:29	19:04 (3)	07:29	07:35	08:35
	22:14	18	21:27 (4)	21:28	20:12	27	19:31 (3)	18:51	15:47
5	04:38	21:10 (4)	05:29		06:31	19:05 (3)	07:31	07:37	08:37
	22:13	16	21:26 (4)	21:26	20:09	24	19:29 (3)	18:48	15:47
6	04:40	21:11 (4)	05:30		06:33	19:07 (3)	07:33	07:39	08:39
	22:12	15	21:26 (4)	21:23	20:07	20	19:27 (3)	18:46	15:46
7	04:41	21:12 (4)	05:32		06:35	19:10 (3)	07:35	07:42	08:40
	22:12	13	21:25 (4)	21:21	20:04	13	19:23 (3)	18:43	15:45
8	04:42	21:14 (4)	05:34		06:37		07:37	07:44	08:41
	22:11	9	21:23 (4)	21:19	20:01		18:41	16:26	15:45
9	04:43	21:17 (4)	05:36	20:08 (6)	06:39		07:39	07:46	08:43
	22:10	3	21:20 (4)	21:17	6	20:14 (6)	18:38	16:24	15:44
10	04:44		05:38	20:05 (6)	06:41		07:41	07:48	08:44
	22:09		21:14	12	20:17 (6)	19:56	18:35	16:22	15:44
11	04:46		05:40	19:21 (3)	06:43		07:44	07:50	08:45
	22:08		21:12	21	20:18 (6)	19:53	18:33	16:20	15:43
12	04:47		05:42	19:17 (3)	06:45		07:46	07:52	08:47
	22:07		21:10	32	20:19 (6)	19:50	18:30	16:18	15:43
13	04:48		05:44	19:14 (3)	06:47		07:48	07:55	08:48
	22:05		21:08	39	20:19 (6)	19:48	18:28	16:16	15:43
14	04:50		05:46	19:12 (3)	06:49		07:50	07:57	08:49
	22:04		21:05	43	20:20 (6)	19:45	18:25	16:15	15:43
15	04:51		05:48	19:10 (3)	06:51		07:52	07:59	08:50
	22:03		21:03	48	20:20 (6)	19:42	18:22	16:13	15:43
16	04:53		05:50	19:09 (3)	06:53		07:54	08:01	08:51
	22:02		21:00	50	20:20 (6)	19:40	18:20	16:11	15:43
17	04:54		05:52	19:07 (3)	06:55		07:56	08:03	08:52
	22:00		20:58	54	20:21 (6)	19:37	18:17	16:09	15:43
18	04:56		05:54	19:06 (3)	06:57		07:58	08:05	08:53
	21:59		20:55	55	20:20 (6)	19:34	18:15	16:08	15:43
19	04:57		05:56	19:05 (3)	06:59		08:00	08:07	08:53
	21:57		20:53	56	20:20 (6)	19:32	18:12	16:06	15:43
20	04:59		05:59	19:05 (3)	07:01		08:03	08:09	08:54
	21:56		20:51	56	20:19 (6)	19:29	18:10	16:04	15:43
21	05:01		06:01	19:03 (3)	07:03		08:05	08:11	08:55
	21:54		20:48	55	20:16 (6)	19:26	18:07	16:03	15:44
22	05:02		06:03	19:02 (3)	07:05		08:07	08:13	08:55
	21:52		20:46	53	20:14 (6)	19:23	18:05	16:01	15:44
23	05:04		06:05	19:02 (3)	07:07		08:09	08:15	08:56
	21:51		20:43	50	20:12 (6)	19:21	18:02	16:00	15:45
24	05:06		06:07	19:01 (3)	07:09		08:11	08:17	08:56
	21:49		20:41	47	20:09 (6)	19:18	18:00	15:58	15:45
25	05:08		06:09	19:01 (3)	07:11		07:13	08:19	08:57
	21:47		20:38	42	20:07 (6)	19:15	16:58	15:57	15:46
26	05:10		06:11	19:01 (3)	07:13		07:15	08:21	08:57
	21:46		20:35	39	19:40 (3)	19:13	16:55	15:56	15:47
27	05:11		06:13	19:01 (3)	07:15		07:18	08:23	08:57
	21:44		20:33	39	19:40 (3)	19:10	16:53	15:54	15:48
28	05:13		06:15	19:01 (3)	07:17		07:20	08:25	08:57
	21:42		20:30	38	19:39 (3)	19:07	16:50	15:53	15:49
29	05:15		06:17	19:01 (3)	07:19		07:22	08:27	08:57
	21:40		20:28	38	19:39 (3)	19:05	16:48	15:52	15:50
30	05:17		06:19	19:01 (3)	07:21		07:24	08:29	08:57
	21:38		20:25	37	19:38 (3)	19:02	16:46	15:51	15:51
31	05:19		06:21	19:01 (3)			07:26		08:57
	21:36		20:22	35	19:36 (3)		16:44		15:52
Potential sun hours	530		470		385		323	247	216
Total, worst case	135		945		180				
Sun reduction	0,48		0,51		0,46				
Oper. time red.	1,00		1,00		1,00				
Wind dir. red.	1,00		1,00		1,00				
Total reduction	0,48		0,51		0,46				
Total, real	64		482		83				

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Priez lejas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (241)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 20:36 (4)
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:03	04:40 20:52 (4)
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:39 20:52 (4)
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	05:31 21:08	04:37 20:52 (4)
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	19:33 (3) 05:29 19:38 (3) 21:10	04:37 22:04 11 20:51 (4)
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	19:29 (3) 05:26 19:40 (3) 21:12	04:36 22:05 9 20:50 (4)
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	19:28 (3) 05:24 19:43 (3) 21:14	04:35 22:07 5 20:48 (4)
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	19:26 (3) 05:22 19:44 (3) 21:16	04:34 22:08
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	19:24 (3) 05:20 19:46 (3) 21:18	20:38 (4) 04:33 20:44 (4) 22:09
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	19:24 (3) 05:18 19:47 (3) 21:20	20:36 (4) 04:33 20:46 (4) 22:10
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	19:22 (3) 05:16 19:47 (3) 21:22	20:35 (4) 04:32 20:47 (4) 22:11
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	19:22 (3) 05:14 19:47 (3) 21:24	20:34 (4) 04:32 20:49 (4) 22:11
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	19:22 (3) 05:12 19:46 (3) 21:26	20:34 (4) 04:31 20:52 (4) 22:12
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	19:22 (3) 05:10 19:47 (3) 21:28	20:33 (4) 04:31 20:53 (4) 22:13
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	19:21 (3) 05:08 19:46 (3) 21:30	20:32 (4) 04:30 20:54 (4) 22:14
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	19:22 (3) 05:06 19:45 (3) 21:32	20:31 (4) 04:30 20:54 (4) 22:14
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	19:22 (3) 05:04 19:44 (3) 21:34	20:32 (4) 04:30 20:55 (4) 22:15
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	19:23 (3) 05:02 19:43 (3) 21:35	20:31 (4) 04:30 20:55 (4) 22:15
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	19:24 (3) 05:00 19:41 (3) 21:37	20:32 (4) 04:30 20:56 (4) 22:16
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	19:26 (3) 04:58 19:40 (3) 21:39	20:31 (4) 04:30 20:56 (4) 22:16
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:41	19:27 (3) 04:57 19:36 (3) 21:41	20:31 (4) 04:30 20:55 (4) 22:16
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	04:55 21:43	20:31 (4) 04:30 20:56 (4) 22:17
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	20:32 (4) 04:30 20:56 (4) 22:17
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	20:32 (4) 04:31 20:55 (4) 22:17
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	20:32 (4) 04:31 20:55 (4) 22:17
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	04:49 21:50	20:33 (4) 04:32 20:55 (4) 22:17
27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	04:47 21:51	20:33 (4) 04:32 20:54 (4) 22:17
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	20:33 (4) 04:33 20:54 (4) 22:16
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	20:34 (4) 04:33 20:54 (4) 22:16
30	08:25 16:46		07:00 19:55	05:40 20:59	04:43 21:56	20:35 (4) 04:34 20:54 (4) 22:16
31	08:23 16:48		06:57 19:57		04:42 21:57	20:36 (4) 04:34 20:53 (4) 22:16
Potential sun hours	235	266	366	426	508	529
Total, worst case				323	461	83
Sun reduction				0,47	0,59	0,57
Oper. time red.				1,00	1,00	1,00
Wind dir. red.				1,00	1,00	1,00
Total reduction				0,47	0,59	0,57
Total, real				151	271	47

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Priež lejas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (241)
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 22:15	05:21 21:34	20:45 (4) 21:00 (4)	06:23 20:20	19:21 (3) 19:46 (3)	07:23 18:59
2	04:36 22:15	05:23 21:32	20:46 (4) 20:57 (4)	06:25 20:17	19:22 (3) 19:45 (3)	07:25 18:56
3	04:37 22:14	05:25 21:30	20:47 (4) 20:55 (4)	06:27 20:14	19:22 (3) 19:44 (3)	07:27 18:54
4	04:37 22:14	05:27 21:28	20:50 (4) 20:54 (4)	06:29 20:12	19:23 (3) 19:41 (3)	07:29 18:51
5	04:38 22:13	20:50 (4) 20:53 (4)	05:28 21:26	06:31 20:09	19:24 (3) 19:39 (3)	07:31 18:48
6	04:39 22:12	20:48 (4) 20:55 (4)	05:30 21:23	06:33 20:07	19:25 (3) 19:36 (3)	07:33 18:46
7	04:41 22:11	20:47 (4) 20:57 (4)	05:32 21:21	06:35 20:04	19:28 (3) 19:34 (3)	07:35 18:43
8	04:42 22:11	20:46 (4) 21:02 (4)	05:34 21:19	06:37 20:01	07:37 18:41	07:44 16:26
9	04:43 22:10	20:46 (4) 20:59 (4)	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24
10	04:44 22:09	20:45 (4) 21:00 (4)	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22
11	04:46 22:08	20:44 (4) 21:00 (4)	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20
12	04:47 22:07	20:44 (4) 21:02 (4)	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18
13	04:48 22:05	20:44 (4) 21:02 (4)	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16
14	04:50 22:04	20:43 (4) 21:02 (4)	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14
15	04:51 22:03	20:43 (4) 21:04 (4)	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13
16	04:53 22:01	20:43 (4) 21:04 (4)	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11
17	04:54 22:00	20:42 (4) 21:04 (4)	05:52 20:58	06:55 19:37	07:56 18:17	08:03 16:09
18	04:56 21:59	20:42 (4) 21:05 (4)	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07
19	04:57 21:57	20:42 (4) 21:05 (4)	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06
20	04:59 21:56	20:42 (4) 21:06 (4)	05:58 20:51	07:01 19:29	08:02 18:10	08:09 16:04
21	05:01 21:54	20:41 (4) 21:05 (4)	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03
22	05:02 21:52	20:42 (4) 21:06 (4)	06:03 20:46	07:05 19:23	08:07 18:05	16:03 15:44
23	05:04 21:51	20:41 (4) 21:05 (4)	06:05 20:43	07:07 19:21	08:09 18:02	08:15 16:00
24	05:06 21:49	20:42 (4) 21:06 (4)	06:07 20:40	07:09 19:18	08:11 18:00	08:17 15:58
25	05:08 21:47	20:42 (4) 21:06 (4)	06:09 20:38	07:11 19:15	07:13 16:57	08:19 15:57
26	05:09 21:46	20:42 (4) 21:05 (4)	06:11 20:35	07:13 19:13	07:15 16:55	08:21 15:56
27	05:11 21:44	20:42 (4) 21:06 (4)	06:13 20:33	07:15 19:10	07:18 16:53	08:23 15:54
28	05:13 21:42	20:43 (4) 21:06 (4)	06:15 20:30	07:17 19:07	07:20 16:50	08:25 15:53
29	05:15 21:40	20:42 (4) 21:04 (4)	06:17 20:28	07:19 19:04	07:22 16:48	08:27 15:52
30	05:17 21:38	20:43 (4) 21:03 (4)	06:19 20:25	07:21 19:02	07:24 16:46	08:29 15:51
31	05:19 21:36	20:44 (4) 21:01 (4)	06:21 20:22	19:21 (3) 19:46 (3)	07:26 16:43	08:57 15:52
Potential sun hours	530	470	385	323	247	216
Total, worst case	514	243	120			
Sun reduction	0,48	0,51	0,46			
Oper. time red.	1,00	1,00	1,00			
Wind dir. red.	1,00	1,00	1,00			
Total reduction	0,48	0,51	0,46			
Total, real	245	124	56			

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Pukes - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (234)
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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	05:27 21:12	04:36 22:06	04:40 22:12	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	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 16:29	08:40 15:46
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	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	06:31 20:18	05:18 21:20	04:33 22:10	04:45 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:32 22:12	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 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	04:31 22:14	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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	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	04:58 21:57	05:57 20:53	06:59 19:32	08:01 18:13	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	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:32 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:13 18:05	08:20 16:58	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 18:05	08:21 16:55	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 20:53	04:48 21:51	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:03	08:23 16:53	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	08:20 18:01	08:25 16:51	08:57 15:49
29	08:27 16:44		07:03 19:53	05:43 20:57	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:57 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	08:24 18:00	08:29 16:46	08:57 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 18:59		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Plavinas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (208)
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 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:14	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	05:27 21:12	04:36 22:06	04:40 22:12	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	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 16:05	08:04 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	06:31 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:46 15:44
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 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:12	04:49 22:05	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	08:47 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	04:31 22:14	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 18:28	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 22:15	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	08:42 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:37	04:30 22:16	04:58 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	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:09 16:04	08:54 15:44
21	08:40 16:27	07:37 17:36	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:55 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:05	08:19 16:58	08:57 15:46
26	08:32 16:37	07:24 17:47	06:11 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	08:16 18:05	08:21 16:55	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	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:03	08:23 16:53	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	08:20 18:01	08:25 16:51	08:57 15:49
29	08:27 16:44		07:02 19:53	05:43 20:57	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:57 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	08:24 18:00	08:29 16:46	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:26 18:59		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Rinki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (233)
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	06:55 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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:01	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	07:07 18:02	06:44 20:07	05:29 21:10	04:37 22:05	04:39 22:13	05:29 21:26	06:31 20:10	07:31 18:49	07:38 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:22	06:35 20:04	07:36 18:43	07:42 16:29	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 20:02	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	08:53 16:06	08:02 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:39 21:15	06:41 19:56	07:42 18:36	07:48 16:22	08:45 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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:13	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	08:48 15:43
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15	08:48 16:15	07:51 17:22	06:40 18:23	06:18 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 18:28	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 18:18	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:35	07:59 18:15	08:06 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	04:58 21:58	05:57 20:53	06:59 19:32	08:01 18:13	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	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:55 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 21:47	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:59	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 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 18:15	08:22 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 20:53	04:47 21:52	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:23 16:53	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:51	05:45 20:56	04:46 21:53	04:33 22:17	05:13 21:42	06:15 20:31	07:17 19:07	08:20 18:05	08:25 16:51	08:58 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	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	08:24 18:05	08:29 16:46	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 18:44		08:58 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Rogas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (189)
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	07:16 17:53	06:54 19:59	05:38 21:01	20:19 (4) 20:30 (4)	04:41 21:59	04:35 22:15	05:21 21:34	20:30 (4) 20:44 (4)	06:23 20:20	19:22 (3) 19:39 (3)	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	19:30 (3) 19:32 (3)	20:17 (4) 20:31 (4)	04:40 22:00	04:36 22:15	05:23 21:32	20:28 (4) 20:44 (4)	06:25 20:17	19:21 (3) 19:39 (3)	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	19:27 (3) 19:34 (3)	20:17 (4) 20:33 (4)	04:38 22:02	04:36 22:14	05:25 21:30	20:28 (4) 20:45 (4)	06:27 20:14	19:20 (3) 19:40 (3)	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	19:25 (3) 19:36 (3)	20:17 (4) 20:35 (4)	04:37 22:03	04:37 22:14	05:26 21:28	20:27 (4) 20:46 (4)	06:29 20:12	19:20 (3) 19:40 (3)	07:29 18:51	07:35 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	19:25 (3) 19:38 (3)	20:16 (4) 20:36 (4)	04:37 22:04	04:38 22:13	05:28 21:26	20:27 (4) 20:46 (4)	06:31 20:09	19:19 (3) 19:39 (3)	07:31 18:48	07:37 16:32	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	19:23 (3) 19:40 (3)	20:16 (4) 20:36 (4)	04:36 22:05	04:39 22:12	05:30 21:23	20:26 (4) 20:45 (4)	06:33 20:06	19:19 (3) 19:36 (3)	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	19:23 (3) 19:43 (3)	20:16 (4) 20:36 (4)	04:35 22:07	04:41 22:11	05:32 21:21	20:26 (4) 20:46 (4)	06:35 20:04	19:20 (3) 19:34 (3)	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	19:23 (3) 19:42 (3)	20:17 (4) 20:36 (4)	04:34 22:08	04:42 22:11	05:34 21:19	20:26 (4) 20:45 (4)	06:37 20:01	19:20 (3) 19:31 (3)	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	19:22 (3) 19:42 (3)	20:17 (4) 20:35 (4)	04:33 22:09	04:43 22:10	05:36 21:17	20:26 (4) 20:43 (4)	06:39 19:58	19:21 (3) 19:29 (3)	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	19:23 (3) 19:41 (3)	20:17 (4) 20:34 (4)	04:33 22:09	04:44 22:09	05:38 21:14	20:26 (4) 20:42 (4)	06:41 19:56	19:23 (3) 19:26 (3)	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	19:23 (3) 19:40 (3)	20:18 (4) 20:33 (4)	04:42 22:11	04:45 22:08	05:40 21:12	20:27 (4) 20:40 (4)	06:43 19:53	19:26 (3) 19:33 (3)	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	19:24 (3) 19:39 (3)	20:19 (4) 20:32 (4)	04:42 22:11	04:47 22:06	05:42 21:10	20:27 (4) 20:37 (4)	06:45 19:50	19:33 (3) 19:40 (3)	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	19:25 (3) 19:37 (3)	20:21 (4) 20:32 (4)	04:41 22:12	04:48 22:05	05:44 21:07	20:28 (4) 20:34 (4)	06:47 19:48	19:33 (3) 19:40 (3)	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	19:27 (3) 19:35 (3)	20:23 (4) 20:29 (4)	04:41 22:13	04:50 22:04	05:46 21:05	20:29 (4) 20:32 (4)	06:49 19:45	19:33 (3) 19:40 (3)	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	19:35 (3) 21:30	20:29 (4) 21:30	04:51 22:03	04:51 22:03	05:48 21:03	20:32 (4) 21:03	06:49 19:42	19:33 (3) 19:40 (3)	07:51 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	19:36 (3) 21:32	20:30 (4) 21:32	04:53 22:01	04:53 22:01	05:50 21:00	20:33 (4) 21:00	06:53 19:40	19:33 (3) 19:40 (3)	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	19:37 (3) 21:33	20:31 (4) 21:33	04:54 22:15	04:54 22:00	05:52 20:58	20:34 (4) 21:07	06:55 19:37	19:33 (3) 19:40 (3)	07:56 18:17	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	19:38 (3) 21:35	20:32 (4) 21:35	04:56 22:15	04:56 21:59	05:54 20:55	20:35 (4) 21:08	06:57 19:34	19:33 (3) 19:40 (3)	07:58 18:15	08:05 16:07	08:53 15:43
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20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	19:40 (3) 21:39	20:34 (4) 22:16	04:59 22:16	04:59 21:56	05:58 20:50	20:37 (4) 21:12	07:01 19:29	19:33 (3) 19:40 (3)	08:02 18:10	08:09 16:04	08:54 15:43
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28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	19:48 (3) 21:53	20:42 (4) 22:16	05:13 22:16	05:13 21:42	06:15 20:30	20:45 (4) 21:24	07:17 19:07	19:33 (3) 19:40 (3)	07:20 16:50	08:25 15:53	08:57 15:49
29	08:26 16:44	07:02 19:52	05:42 20:57	05:42 20:57	20:21 (4) 21:54	20:43 (4) 22:16	05:15 22:16	05:15 21:40	06:17 20:28	20:46 (4) 21:25	07:19 19:04	19:33 (3) 19:40 (3)	07:22 16:48	08:27 15:52	08:57 15:49
30	08:24 16:46	07:00 19:54	05:40 20:59	05:40 20:59	20:22 (4) 21:56	20:44 (4) 22:16	05:17 22:16	05:17 21:38	06:19 20:31 (4)	20:47 (4) 21:26	07:21 19:02	19:33 (3) 19:40 (3)	07:24 16:46	08:29 15:51	08:57 15:50
31	08:23 16:48	06:57 19:57	05:37 20:57	05:37 20:57	20:23 (4) 21:57	20:45 (4) 22:17	05:19 22:17	05:19 21:36	06:21 20:43 (4)	20:48 (4) 21:27	07:23 (3) 19:03 (3)	19:33 (3) 19:40 (3)	07:26 16:43	08:31 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216			
Total, worst case				191	218		21	243	148						
Sun reduction				0,47	0,59		0,48	0,51	0,46						
Oper. time red.				1,00	1,00		1,00	1,00	1,00						
Wind dir. red.				1,00	1,00		1,00	1,00	1,00						
Total reduction				0,47	0,59		0,48	0,51	0,46						
Total, real				89	128		10	124	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)
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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

Calculation: Flickering_Vestas_V162 Shadow receptor: Rukmulī - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (213)
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	07:16 17:53	06:54 19:59	05:38 21:01	19:52 (3) 20:10 (3)	04:41 21:59	20:58 (4) 21:20 (4)	04:35 22:15	21:03 (4) 21:25 (4)	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:03	19:52 (3) 20:08 (3)	04:40 22:00	20:58 (4) 21:20 (4)	04:36 22:15	21:04 (4) 21:26 (4)	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	19:53 (3) 20:07 (3)	04:39 22:02	20:58 (4) 21:20 (4)	04:37 22:14	21:04 (4) 21:26 (4)	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	05:31 21:08	19:55 (3) 20:05 (3)	04:38 22:03	20:59 (4) 21:21 (4)	04:37 22:14	21:04 (4) 21:27 (4)	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	05:29 21:10	20:05 (3) 21:04 (3)	04:37 22:04	20:59 (4) 21:21 (4)	04:38 22:13	21:05 (4) 21:27 (4)	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	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	21:05 (4) 22:05	04:36 22:05	20:58 (4) 21:21 (4)	04:40 22:12	21:05 (4) 21:27 (4)	05:30 21:23	06:33 20:07	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	21:05 (4) 22:07	04:35 22:11	20:58 (4) 21:21 (4)	04:41 22:11	21:05 (4) 21:27 (4)	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	21:05 (4) 22:08	04:34 22:11	20:59 (4) 21:21 (4)	04:42 22:11	21:05 (4) 21:27 (4)	05:34 21:19	20:08 (3) 20:11 (3)	07:37 18:41	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	21:05 (4) 22:09	04:43 22:10	20:59 (4) 21:21 (4)	04:43 22:10	21:05 (4) 21:27 (4)	05:36 21:17	20:04 (3) 20:15 (3)	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	21:05 (4) 22:10	04:44 22:09	21:00 (4) 21:22 (4)	04:44 22:09	21:05 (4) 21:27 (4)	05:38 21:14	20:02 (3) 20:17 (3)	06:41 18:35	07:41 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	21:05 (4) 22:11	04:46 22:08	20:59 (4) 21:21 (4)	04:46 22:08	21:05 (4) 21:27 (4)	05:40 21:12	20:01 (3) 20:18 (3)	06:43 18:33	07:43 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	21:05 (4) 22:11	04:47 22:06	21:00 (4) 21:22 (4)	04:47 22:06	21:06 (4) 21:28 (4)	05:42 21:10	20:00 (3) 20:19 (3)	06:45 18:30	07:46 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:12 21:26	21:05 (4) 22:12	04:48 22:05	21:00 (4) 21:22 (4)	04:48 22:05	21:06 (4) 21:27 (4)	05:44 21:07	19:58 (3) 20:19 (3)	06:47 18:27	07:48 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:10 21:28	21:05 (4) 22:13	04:50 22:04	21:01 (4) 21:23 (4)	04:50 22:04	21:06 (4) 21:26 (4)	05:46 21:05	19:57 (3) 20:19 (3)	06:49 18:25	07:50 16:15	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	21:05 (4) 22:14	04:51 22:03	21:00 (4) 21:22 (4)	04:51 22:03	21:07 (4) 21:25 (4)	05:48 21:03	19:57 (3) 20:20 (3)	06:51 18:22	07:52 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	21:05 (4) 22:14	04:53 22:01	21:01 (4) 21:22 (4)	04:53 22:01	21:07 (4) 21:24 (4)	05:50 21:00	19:56 (3) 20:20 (3)	06:53 18:20	07:54 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	21:05 (3) 20:02 (3)	04:54 21:34	21:01 (4) 21:22 (4)	04:54 22:00	21:08 (4) 21:22 (4)	05:52 20:58	19:56 (3) 20:20 (3)	06:55 18:17	07:56 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	05:02 21:35	19:57 (3) 20:04 (3)	04:56 21:35	21:01 (4) 21:23 (4)	04:56 21:59	21:09 (4) 21:21 (4)	05:54 20:55	19:56 (3) 20:20 (3)	06:57 18:15	07:58 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	19:55 (3) 20:06 (3)	04:50 21:37	21:01 (4) 21:23 (4)	04:57 21:57	21:09 (4) 21:20 (4)	05:56 20:53	19:56 (3) 20:19 (3)	06:59 18:12	08:00 16:06	08:54 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	19:53 (3) 20:08 (3)	04:58 22:16	21:02 (4) 21:23 (4)	04:58 21:56	21:10 (4) 21:19 (4)	05:58 20:51	19:56 (3) 20:19 (3)	07:01 18:10	08:02 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:41	04:57 21:41	19:52 (3) 20:09 (3)	04:57 21:41	21:03 (4) 21:24 (4)	05:01 21:54	21:11 (4) 21:17 (4)	06:00 20:48	19:56 (3) 20:16 (3)	07:03 18:07	08:05 16:03	08:55 15:44
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	04:55 21:43	19:51 (3) 20:12 (3)	04:55 21:43	21:03 (4) 21:24 (4)	05:02 21:52	21:13 (4) 21:16 (4)	06:03 20:46	19:56 (3) 20:14 (3)	07:05 18:05	08:07 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	19:51 (3) 20:13 (3)	04:53 21:44	21:03 (4) 21:24 (4)	05:04 21:51	21:13 (4) 21:24 (4)	06:05 20:43	19:57 (3) 20:12 (3)	07:07 18:02	08:09 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	19:50 (3) 20:13 (3)	04:52 21:46	21:02 (4) 21:24 (4)	05:06 21:49	21:12 (4) 21:24 (4)	06:07 20:40	19:58 (3) 20:09 (3)	07:09 18:00	08:11 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	19:50 (3) 20:13 (3)	04:50 21:48	21:03 (4) 21:24 (4)	05:08 21:47	21:13 (4) 21:24 (4)	06:09 20:38	20:00 (3) 20:07 (3)	07:11 18:15	07:13 16:58	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	19:50 (3) 20:13 (3)	04:49 21:50	21:03 (4) 21:24 (4)	05:10 21:45	21:13 (4) 21:24 (4)	06:11 20:35	20:07 (3) 19:13	07:15 16:55	08:21 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 21:51	19:49 (3) 20:12 (3)	04:47 21:51	21:03 (4) 21:25 (4)	05:11 21:44	21:13 (4) 21:25 (4)	06:13 20:33	20:08 (3) 19:10	07:18 16:53	08:23 15:54	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	19:49 (3) 20:12 (3)	04:46 21:53	21:03 (4) 21:25 (4)	05:13 21:42	21:13 (4) 21:25 (4)	06:15 20:30	20:09 (3) 19:07	07:20 16:50	08:25 15:53	08:57 15:49
29	08:26 16:44	07:02 17:52	05:42 18:50	05:42 20:57	04:44 21:54	19:50 (3) 20:12 (3)	04:44 21:54	21:04 (4) 21:25 (4)	05:15 21:40	21:13 (4) 21:25 (4)	06:17 20:28	20:10 (3) 19:04	07:22 16:48	08:27 15:52	08:57 15:49
30	08:24 16:46	07:00 17:55	05:40 18:50	05:40 20:59	04:43 21:56	19:51 (3) 20:11 (3)	04:43 21:56	21:04 (4) 21:26 (4)	05:17 21:38	21:13 (4) 21:26 (4)	06:19 20:25	20:11 (3) 19:02	07:24 16:46	08:29 15:51	08:57 15:51
31	08:23 16:48	06:57 17:57	05:07 18:57	04:42 21:57	04:42 21:57	19:51 (3) 21:19 (4)	04:42 21:38	21:04 (4) 21:26 (4)	05:19 21:36	21:13 (4) 21:26 (4)	06:21 20:22	20:12 (3) 19:02	07:26 16:43	08:30 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216			
Total, worst case				251	196	653	396	320							
Sun reduction				0,47	0,59	0,57	0,48	0,51							
Oper. time red.				1,00	1,00	1,00	1,00	1,00							
Wind dir. red.				1,00	1,00	1,00	1,00	1,00							
Total reduction				0,47	0,59	0,57	0,48	0,51							
Total, real				117	115	372	189	163							

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Rutki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (239)
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	06:55 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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:01	04:36 22:15	05:23 21:32	06:25 20:18	07:31 18:57	07:31 16:39	08:33 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 15:57	08:15 16:57	07:09 18:00	06:47 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	07:07 18:02	06:44 20:07	05:29 21:10	04:37 22:05	04:39 22:13	05:29 21:26	06:31 20:10	07:31 18:49	07:38 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:10	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:22	06:35 20:04	07:36 18:43	07:42 16:29	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 20:02	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	08:53 16:06	08:02 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:39 21:15	06:41 19:56	07:42 18:36	07:49 16:22	08:45 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	05:41 21:13	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:46 18:19	06:23 20:24	05:12 21:26	04:31 22:13	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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 22:05	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	06:18 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	08:47 16:17	07:49 17:24	06:38 18:26	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 18:28	06:12 20:33	05:04 21:34	04:30 22:15	04:54 22:01	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:35	07:59 18:15	08:06 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	04:58 21:58	05:57 20:53	06:59 19:32	08:01 18:13	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	04:59 21:40	04:30 22:17	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:55 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 21:47	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:59	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 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 18:47	05:50 20:51	04:49 21:50	04:32 22:17	05:10 21:46	06:11 20:36	07:13 19:13	08:16 18:15	08:22 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 20:53	04:47 21:52	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:24 16:53	08:57 15:48
28	08:29 16:42	07:19 17:51	06:05 18:51	05:45 20:56	04:46 21:53	04:33 22:17	05:13 21:42	06:15 20:31	07:17 19:08	08:20 18:05	08:25 16:51	08:58 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:45 21:55	04:34 22:17	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	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	08:24 18:05	08:29 16:46	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 18:44		08:58 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Salaskalni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (195)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:04	04:39 22:00
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	05:31 21:08	04:37 22:03
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:05
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	04:34 22:08
9	08:53 16:04	08:04 17:08	06:56 18:10	17:34 (4) 06:33 17:41 (4) 20:15	05:20 21:18	04:33 22:09
10	08:52 16:06	08:02 17:11	06:53 18:12	17:33 (4) 06:30 17:44 (4) 20:18	05:18 21:20	04:33 22:10
11	08:51 16:08	08:00 17:13	06:50 18:15	17:31 (4) 06:28 17:46 (4) 20:20	05:16 21:22	04:32 22:11
12	08:50 16:09	07:58 17:15	06:48 18:17	17:29 (4) 06:25 17:48 (4) 20:22	05:13 21:24	04:32 22:12
13	08:49 16:11	07:55 17:17	16:42 (3) 06:45 16:46 (3) 18:19	17:29 (4) 06:22 17:51 (4) 20:24	05:11 21:26	04:31 22:12
14	08:48 16:13	07:53 17:20	16:40 (3) 06:42 16:48 (3) 18:21	17:28 (4) 06:20 17:51 (4) 20:26	19:55 (5) 05:09 19:57 (5) 21:28	04:31 22:13
15	08:47 16:15	07:51 17:22	16:39 (3) 06:40 16:50 (3) 18:23	17:27 (4) 06:17 17:50 (4) 20:28	19:51 (5) 05:08 19:58 (5) 21:30	04:30 22:14
16	08:46 16:17	07:48 17:24	16:38 (3) 06:37 16:52 (3) 18:25	17:27 (4) 06:15 17:50 (4) 20:30	19:50 (5) 05:06 20:01 (5) 21:32	04:30 22:14
17	08:45 16:19	07:46 17:26	16:38 (3) 06:34 16:55 (3) 18:27	17:28 (4) 06:12 17:50 (4) 20:32	19:48 (5) 05:04 20:02 (5) 21:34	04:30 22:15
18	08:44 16:21	07:44 17:29	16:37 (3) 06:32 16:57 (3) 18:29	17:27 (4) 06:10 17:49 (4) 20:34	19:48 (5) 05:02 20:04 (5) 21:35	04:30 22:15
19	08:42 16:23	07:41 17:31	16:38 (3) 06:29 16:58 (3) 18:31	17:28 (4) 06:07 17:47 (4) 20:36	19:46 (5) 05:00 20:06 (5) 21:37	04:30 22:16
20	08:41 16:25	07:39 17:33	16:37 (3) 06:26 16:57 (3) 18:34	17:29 (4) 06:04 17:46 (4) 20:38	19:46 (5) 04:58 20:07 (5) 21:39	04:30 22:16
21	08:40 16:27	07:37 17:35	16:38 (3) 06:24 16:57 (3) 18:36	17:31 (4) 06:02 17:44 (4) 20:41	19:45 (5) 04:57 20:07 (5) 21:41	04:30 22:16
22	08:38 16:29	07:34 17:37	16:38 (3) 06:21 16:56 (3) 18:38	17:33 (4) 05:59 17:41 (4) 20:43	19:45 (5) 04:55 20:07 (5) 21:43	04:30 22:17
23	08:37 16:31	07:32 17:40	16:40 (3) 06:18 16:55 (3) 18:40	05:57 20:45	19:46 (5) 04:53 20:07 (5) 21:45	04:30 22:17
24	08:35 16:33	07:29 17:42	16:41 (3) 06:16 16:53 (3) 18:42	05:54 20:47	19:45 (5) 04:52 20:05 (5) 21:46	04:31 22:17
25	08:33 16:35	07:27 17:44	16:43 (3) 06:13 16:50 (3) 18:44	05:52 20:49	19:46 (5) 04:50 20:05 (5) 21:48	04:31 22:17
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	19:47 (5) 04:49 20:04 (5) 21:50	04:32 22:17
27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	19:48 (5) 04:47 20:02 (5) 21:51	04:32 22:17
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	19:49 (5) 04:46 20:00 (5) 21:53	04:33 22:16
29	08:26 16:44		07:02 19:52	05:42 20:57	19:53 (5) 04:44 19:57 (5) 21:54	04:33 22:16
30	08:25 16:46		07:00 19:55	05:40 20:59	21:54 21:56	04:34 22:16
31	08:23 16:48		06:57 19:57		04:42 21:57	
Potential sun hours	235	266	366	426	508	529
Total, worst case		185	244	241		
Sun reduction		0,19	0,40	0,47		
Oper. time red.		1,00	1,00	1,00		
Wind dir. red.		1,00	1,00	1,00		
Total reduction		0,19	0,40	0,47		
Total, real		35	98	112		

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Salaskalni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (195)

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 22:15	05:21 21:34	06:23 20:20	07:23 18:59	18:08 (4) 16:41	07:29 15:50
2	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	18:09 (4) 16:39	07:31 15:49
3	04:36 22:14	05:25 21:30	06:27 20:15	07:27 18:54	18:10 (4) 16:37	07:33 15:48
4	04:37 22:14	05:26 21:28	06:29 20:12	07:29 18:51	18:11 (4) 16:35	07:35 15:47
5	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	18:14 (4) 16:32	07:37 15:46
6	04:39 22:12	05:30 21:23	06:33 20:07	07:33 18:46	18:18 (4) 16:30	07:39 15:46
7	04:41 22:12	05:32 21:21	06:35 20:04	07:35 18:43	16:28	07:42 15:45
8	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:42 15:45
9	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	04:45 22:08	05:40 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:46 15:43
12	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	04:48 22:05	05:44 21:08	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	04:50 22:04	05:46 21:05	19:59 (5) 20:06 (5)	06:49 19:45	07:57 16:14	08:49 15:43
15	04:51 22:03	05:48 21:03	19:57 (5) 20:08 (5)	06:51 19:42	07:59 16:13	08:50 15:43
16	04:53 22:02	05:50 21:00	19:55 (5) 20:10 (5)	06:53 19:40	08:01 16:11	08:51 15:43
17	04:54 22:00	05:52 20:58	19:54 (5) 20:11 (5)	06:55 19:37	08:03 16:09	08:52 15:43
18	04:56 21:59	05:54 20:55	19:53 (5) 20:12 (5)	06:57 19:34	08:05 16:07	08:53 15:43
19	04:57 21:57	05:56 20:53	19:52 (5) 20:12 (5)	06:59 19:31	08:07 16:06	08:53 15:43
20	04:59 21:56	05:58 20:51	19:50 (5) 20:11 (5)	07:01 19:29	08:09 16:04	08:54 15:43
21	05:01 21:54	06:00 20:48	19:50 (5) 20:11 (5)	07:03 19:26	08:11 16:03	08:55 15:44
22	05:02 21:52	06:02 20:46	19:50 (5) 20:11 (5)	07:05 19:23	08:13 16:01	08:55 15:44
23	05:04 21:51	06:04 20:43	19:50 (5) 20:11 (5)	07:07 19:21	08:15 16:00	08:56 15:45
24	05:06 21:49	06:07 20:40	19:50 (5) 20:09 (5)	07:09 19:18	08:17 15:58	08:56 15:45
25	05:08 21:47	06:09 20:38	19:50 (5) 20:07 (5)	07:11 19:15	08:19 15:57	08:57 15:46
26	05:09 21:46	06:11 20:35	19:51 (5) 20:05 (5)	07:13 19:13	08:21 15:56	08:57 15:47
27	05:11 21:44	06:13 20:33	19:52 (5) 20:02 (5)	07:15 19:10	08:23 15:54	08:57 15:48
28	05:13 21:42	06:15 20:30	19:53 (5) 20:00 (5)	07:17 19:07	08:25 15:53	08:57 15:48
29	05:15 21:40	06:17 20:28	19:56 (5) 19:57 (5)	07:19 19:04	08:27 15:52	08:57 15:49
30	05:17 21:38	06:19 20:25	07:21 19:02	18:08 (4) 16:46	08:29 15:51	08:57 15:50
31	05:19 21:36	06:21 20:22		18:30 (4) 16:43		08:57 15:51
Potential sun hours	530	470	385	323	247	216
Total, worst case		241	184	249		
Sun reduction		0,51	0,46	0,28		
Oper. time red.		1,00	1,00	1,00		
Wind dir. red.		1,00	1,00	1,00		
Total reduction		0,51	0,46	0,28		
Total, real		123	85	70		

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Sauliešis - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (235)
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 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:03	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	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:39 22:01	04:37 22:14	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:35 15:48
5	08:55 15:59	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 22:05	04:40 22:12	05:31 21:23	06:33 20:07	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:41 22:11	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	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	04:34 22:08	04:42 22:10	05:35 21:19	06:37 20:01	07:37 18:41	07:44 16:26	08:41 15:45
9	08:53 16:05	08:04 17:09	06:56 18:10	06:33 20:15	05:20 21:18	04:34 22:09	04:43 22:10	05:37 21:17	06:39 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	05:39 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:51 18:15	06:28 20:20	05:16 21:22	04:32 22:10	04:46 22:08	05:41 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:45 15:44
12	08:50 16:10	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	04:32 22:11	04:47 22:06	05:43 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:12	04:48 22:05	05:45 21:07	06:47 19:48	07:48 18:28	07:55 16:17	08:48 15:43
14	08:48 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	08:47 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	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:51 21:00	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 21:33	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 18:29	06:10 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:55 20:55	06:57 19:34	07:58 18:15	08:05 16:08	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 22:16	04:58 21:57	05:57 20:53	06:59 19:32	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:38	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:44
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:16	05:01 21:54	06:01 20:48	07:03 19:26	08:05 18:07	08:11 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 22:16	05:03 21:52	06:03 20:46	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:45
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:02	08:15 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 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:05	08:19 15:57	08:56 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	04:49 21:49	04:32 22:17	05:10 21:45	06:11 20:35	07:13 19:13	08:15 18:05	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 22:16	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:05	08:23 16:53	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:05	08:25 16:51	08:57 15:49
29	08:26 16:44		07:02 19:52	05:43 20:57	04:45 21:54	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:57 15:50
30	08:24 16:46		07:00 19:55	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:05	08:29 16:46	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:05	07:26 16:44	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Senci - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (184)
 Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

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	07:16 17:53	06:54 19:59	05:38 21:01	19:52 (4) 21:59 (5)
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:03	19:53 (4) 21:00 (5)
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	21:00 (5) 21:21 (5)
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	05:31 21:08	04:37 22:03
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	05:29 21:10	21:01 (5) 22:04
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:26 21:12	21:21 (5) 22:05
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	21:02 (5) 22:08
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	21:02 (5) 22:09
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	05:18 21:20	21:03 (5) 22:10
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:11
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	21:03 (5) 22:11
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	21:04 (5) 22:12
14	08:48 16:13	07:53 17:20	06:42 18:21	17:51 (3) 17:53 (3)	06:20 20:26	19:50 (4) 21:28
15	08:47 16:15	07:51 17:22	06:40 18:23	17:47 (3) 17:55 (3)	06:17 20:28	19:47 (4) 21:30
16	08:46 16:17	07:48 17:24	06:37 18:25	17:45 (3) 17:56 (3)	06:15 20:30	19:46 (4) 20:00 (4)
17	08:45 16:19	07:46 17:26	06:34 18:27	17:44 (3) 17:59 (3)	06:12 20:32	19:44 (4) 20:02 (4)
18	08:44 16:21	07:44 17:29	06:32 18:29	17:42 (3) 18:01 (3)	06:10 20:34	19:44 (4) 20:04 (4)
19	08:42 16:23	07:41 17:31	06:29 18:32	17:41 (3) 18:03 (3)	06:07 20:36	19:42 (4) 20:06 (4)
20	08:41 16:25	07:39 17:33	06:26 18:34	17:41 (3) 18:04 (3)	06:04 20:38	19:42 (4) 20:06 (4)
21	08:39 16:27	07:36 17:35	06:24 18:36	17:40 (3) 18:04 (3)	06:02 20:41	19:41 (4) 20:06 (4)
22	08:38 16:29	07:34 17:38	06:21 18:38	17:40 (3) 18:03 (3)	05:59 20:43	19:41 (4) 20:06 (4)
23	08:36 16:31	07:32 17:40	06:18 18:40	17:41 (3) 18:03 (3)	05:57 20:45	19:42 (4) 20:06 (4)
24	08:35 16:33	07:29 17:42	06:16 18:42	17:41 (3) 18:02 (3)	05:54 20:47	19:41 (4) 20:05 (4)
25	08:33 16:35	07:27 17:44	06:13 18:44	17:41 (3) 18:00 (3)	05:52 20:49	19:42 (4) 20:05 (4)
26	08:32 16:37	07:24 17:46	06:10 18:46	17:41 (3) 17:59 (3)	05:50 20:51	19:42 (4) 20:04 (4)
27	08:30 16:39	07:22 17:49	06:08 18:48	17:44 (3) 17:57 (3)	05:47 20:53	19:42 (4) 20:02 (4)
28	08:28 16:42	07:19 17:51	06:05 18:50	17:46 (3) 17:54 (3)	05:45 20:55	19:44 (4) 20:01 (4)
29	08:26 16:44		07:02 19:52	05:42 20:57	19:45 (4) 20:00 (4)	04:44 21:54
30	08:25 16:46		07:00 19:55	05:40 20:59	19:47 (4) 19:58 (4)	04:43 21:56
31	08:23 16:48		06:57 19:57			04:42 21:57
Potential sun hours	235	266	366	426	508	529
Total, worst case			248	324	122	548
Sun reduction			0,40	0,47	0,59	0,57
Oper. time red.			1,00	1,00	1,00	1,00
Wind dir. red.			1,00	1,00	1,00	1,00
Total reduction			0,40	0,47	0,59	0,57
Total, real			100	151	72	312

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Senci - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (184)
 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		21:07 (5)	05:21		06:23	07:23	07:28	08:30
	22:15	18	21:25 (5)	21:34		20:20	18:59	16:41	15:50
2	04:36		21:07 (5)	05:23		06:25	07:25	07:31	08:32
	22:15	19	21:26 (5)	21:32		20:17	18:56	16:39	15:49
3	04:36		21:07 (5)	05:25		06:27	07:27	07:33	08:34
	22:14	19	21:26 (5)	21:30		20:14	18:54	16:37	15:48
4	04:37		21:08 (5)	05:26		06:29	07:29	07:35	08:35
	22:14	19	21:27 (5)	21:28		20:12	18:51	16:35	15:47
5	04:38		21:08 (5)	05:28		06:31	07:31	07:37	08:37
	22:13	19	21:27 (5)	21:26		20:09	18:48	16:32	15:47
6	04:39		21:08 (5)	05:30		06:33	07:33	07:39	08:39
	22:12	19	21:27 (5)	21:23		20:07	18:46	16:30	15:46
7	04:41		21:08 (5)	05:32		06:35	07:35	07:42	08:40
	22:11	20	21:28 (5)	21:21		20:04	18:43	16:28	15:45
8	04:42		21:08 (5)	05:34		06:37	07:37	07:44	08:41
	22:11	20	21:28 (5)	21:19		20:01	18:41	16:26	15:45
9	04:43		21:08 (5)	05:36		06:39	07:39	07:46	08:43
	22:10	20	21:28 (5)	21:17		19:58	18:38	16:24	15:44
10	04:44		21:08 (5)	05:38		06:41	07:41	07:48	08:44
	22:09	20	21:28 (5)	21:14		19:56	18:35	16:22	15:44
11	04:45		21:08 (5)	05:40		06:43	07:43	07:50	08:45
	22:08	20	21:28 (5)	21:12		19:53	18:33	16:20	15:43
12	04:47		21:09 (5)	05:42	19:57 (4)	06:45	07:46	07:52	08:47
	22:07	19	21:28 (5)	21:10	20:03 (4)	19:50	18:30	16:18	15:43
13	04:48		21:09 (5)	05:44	19:54 (4)	06:47	07:48	07:55	08:48
	22:05	18	21:27 (5)	21:07	20:06 (4)	19:48	18:27	16:16	15:43
14	04:50		21:09 (5)	05:46	19:52 (4)	06:49	07:50	07:57	08:49
	22:04	17	21:26 (5)	21:05	20:08 (4)	19:45	18:25	16:14	15:43
15	04:51		21:09 (5)	05:48	19:51 (4)	06:51	18:36 (3)	07:52	08:50
	22:03	16	21:25 (5)	21:03	20:09 (4)	19:42	18:43 (3)	18:22	16:13
16	04:53		21:09 (5)	05:50	19:50 (4)	06:53	18:32 (3)	07:54	08:51
	22:02	15	21:24 (5)	21:00	20:10 (4)	19:40	18:45 (3)	18:20	16:11
17	04:54		21:09 (5)	05:52	19:49 (4)	06:55	18:30 (3)	07:56	08:52
	22:00	13	21:22 (5)	20:58	20:11 (4)	19:37	18:47 (3)	18:17	16:09
18	04:56		21:10 (5)	05:54	19:48 (4)	06:57	18:29 (3)	07:58	08:53
	21:59	11	21:21 (5)	20:55	20:11 (4)	19:34	18:48 (3)	18:15	16:07
19	04:57		21:10 (5)	05:56	19:48 (4)	06:59	18:27 (3)	08:00	08:53
	21:57	10	21:20 (5)	20:53	20:11 (4)	19:31	18:48 (3)	18:12	16:06
20	04:59		21:12 (5)	05:58	19:47 (4)	07:01	18:26 (3)	08:02	08:54
	21:56	7	21:19 (5)	20:51	20:12 (4)	19:29	18:49 (3)	18:10	16:04
21	05:01		21:12 (5)	06:00	19:46 (4)	07:03	18:26 (3)	08:05	08:55
	21:54	5	21:17 (5)	20:48	20:11 (4)	19:26	18:49 (3)	18:07	16:03
22	05:02		21:13 (5)	06:02	19:46 (4)	07:05	18:25 (3)	08:07	08:55
	21:52	3	21:16 (5)	20:46	20:10 (4)	19:23	18:48 (3)	18:05	16:01
23	05:04			06:05	19:46 (4)	07:07	18:25 (3)	08:09	08:56
	21:51			20:43	20:10 (4)	19:21	18:48 (3)	18:02	16:00
24	05:06			06:07	19:46 (4)	07:09	18:25 (3)	08:11	08:56
	21:49			20:40	20:09 (4)	19:18	18:47 (3)	18:00	15:58
25	05:08			06:09	19:47 (4)	07:11	18:25 (3)	07:13	08:19
	21:47			20:38	20:07 (4)	19:15	18:45 (3)	16:57	15:57
26	05:09			06:11	19:47 (4)	07:13	18:25 (3)	07:15	08:21
	21:46			20:35	20:04 (4)	19:13	18:42 (3)	16:55	15:56
27	05:11			06:13	19:48 (4)	07:15	18:26 (3)	07:18	08:23
	21:44			20:33	20:02 (4)	19:10	18:39 (3)	16:53	15:54
28	05:13			06:15	19:49 (4)	07:17	18:27 (3)	07:20	08:25
	21:42			20:30	20:00 (4)	19:07	18:36 (3)	16:50	15:53
29	05:15			06:17	19:52 (4)	07:19	18:29 (3)	07:22	08:27
	21:40			20:28	5 19:57 (4)	19:04	5 18:34 (3)	16:48	15:52
30	05:17			06:19		07:21		07:24	08:29
	21:38			20:25		19:02		16:46	15:51
31	05:19			06:21				07:26	08:31
	21:36			20:22				16:43	15:52
Potential sun hours	530			470		385		323	247
Total, worst case		347		328		255			
Sun reduction		0,48		0,51		0,46			
Oper. time red.		1,00		1,00		1,00			
Wind dir. red.		1,00		1,00		1,00			
Total reduction		0,48		0,51		0,46			
Total, real		166		167		118			

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Silini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (172)
 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	08:21	07:16	06:54	05:38	04:41	04:35	05:21	06:23	07:23	07:28	08:30
	15:53	16:50	17:53	19:59	21:01	21:59	22:15	21:34	20:20	18:59	16:41	15:50
2	08:57	08:19	07:14	06:51	05:35	04:39	04:36	05:23	06:25	07:25	07:31	08:32
	15:54	16:53	17:55	20:01	21:03	22:00	22:15	21:32	20:17	18:56	16:39	15:49
3	08:56	08:17	07:11	06:49	05:33	04:38	04:36	05:24	06:27	07:27	07:33	08:34
	15:55	16:55	17:57	20:03	21:06	22:02	22:14	21:30	20:14	18:54	16:37	15:48
4	08:56	08:15	07:09	06:46	05:31	04:37	04:37	05:26	06:29	07:29	07:35	08:35
	15:57	16:57	17:59	20:05	21:08	22:03	22:14	21:28	20:12	18:51	16:35	15:47
5	08:56	08:13	07:06	06:43	05:28	04:36	04:38	05:28	06:31	07:31	07:37	08:37
	15:58	16:59	18:02	20:07	21:10	22:04	22:13	21:26	20:09	18:48	16:32	15:46
6	08:55	08:11	07:04	06:41	05:26	04:36	04:39	05:30	06:33	07:33	07:39	08:39
	16:00	17:02	18:04	20:09	21:12	22:05	22:12	21:23	20:06	18:46	16:30	15:46
7	08:54	08:09	07:01	06:38	05:24	04:35	04:41	05:32	06:35	07:35	07:42	08:40
	16:01	17:04	18:06	20:11	21:14	22:07	22:11	21:21	20:04	18:43	16:28	15:45
8	08:54	08:06	06:58	06:36	05:22	04:34	04:42	05:34	06:37	07:37	07:44	08:41
	16:03	17:06	18:08	20:13	21:16	22:08	22:11	21:19	20:01	18:40	16:26	15:45
9	08:53	08:04	06:56	06:33	05:20	04:33	04:43	05:36	06:39	07:39	07:46	08:43
	16:04	17:08	18:10	20:15	21:18	22:09	22:10	21:17	19:58	18:38	16:24	15:44
10	08:52	08:02	06:53	06:30	05:18	04:33	04:44	05:38	06:41	07:41	07:48	08:44
	16:06	17:11	18:12	20:17	21:20	22:10	22:09	21:14	19:56	18:35	16:22	15:44
11	08:51	08:00	06:50	06:28	05:16	04:32	04:45	05:40	06:43	07:43	07:50	08:45
	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	08:50	07:58	06:48	06:25	05:13	04:32	04:47	05:42	06:45	18:55 (4)	07:46	07:52
	16:09	17:15	18:17	20:22	21:24	22:11	22:07	21:10	19:50	7	19:02 (4)	18:30
13	08:49	07:55	06:45	06:22	05:11	04:31	04:48	05:44	06:47	18:52 (4)	07:48	07:55
	16:11	17:17	18:19	20:24	21:26	22:12	22:05	21:07	19:48	12	19:04 (4)	18:27
14	08:48	07:53	06:42	06:20	05:09	04:31	04:50	05:46	06:49	18:50 (4)	07:50	07:57
	16:13	17:20	18:21	20:26	21:28	22:13	22:04	21:05	19:45	15	19:05 (4)	18:25
15	08:47	07:51	06:40	06:17	05:07	04:30	04:51	05:48	06:51	18:49 (4)	07:52	07:59
	16:15	17:22	18:23	20:28	21:30	22:14	22:03	21:03	19:42	17	19:06 (4)	18:22
16	08:46	07:48	06:37	06:15	05:06	04:30	04:53	05:50	06:53	18:48 (4)	07:54	08:01
	16:17	17:24	18:25	20:30	21:32	22:14	22:02	21:00	19:40	18	19:06 (4)	18:20
17	08:45	07:46	06:34	06:12	05:04	04:30	04:54	05:52	06:55	18:47 (4)	07:56	08:03
	16:19	17:26	18:27	20:32	21:34	22:15	22:00	20:58	19:37	19	19:06 (4)	18:17
18	08:44	07:44	06:32	06:09	05:02	04:30	04:56	05:54	06:57	18:47 (4)	07:58	08:05
	16:21	17:29	18:29	20:34	21:35	22:15	21:59	20:55	19:34	17	19:04 (4)	18:15
19	08:42	07:41	06:29	06:07	05:00	04:30	04:57	05:56	06:59	18:47 (4)	08:00	08:07
	16:23	17:31	18:31	20:36	21:37	22:16	21:57	20:53	19:31	14	19:01 (4)	18:12
20	08:41	07:39	06:26	06:04	04:58	04:30	04:59	05:58	07:01	18:47 (4)	08:02	08:09
	16:25	17:33	18:34	20:38	21:39	22:16	21:56	20:51	19:29	11	18:58 (4)	18:10
21	08:39	07:36	06:24	18:05 (4)	06:02	04:57	04:30	05:01	06:00	18:48 (4)	08:05	08:11
	16:27	17:35	18:36	3	18:08 (4)	20:41	21:41	22:16	21:54	8	18:56 (4)	18:07
22	08:38	07:34	06:21	18:02 (4)	05:59	04:55	04:30	05:02	06:02	18:49 (4)	08:07	08:13
	16:29	17:37	18:38	7	18:09 (4)	20:43	21:43	22:17	21:52	4	18:53 (4)	18:05
23	08:36	07:32	06:18	18:01 (4)	05:57	04:53	04:30	05:04	06:04	18:47 (4)	08:09	08:15
	16:31	17:40	18:40	10	18:11 (4)	20:45	21:44	22:17	21:51	18:02	16:00	15:45
24	08:35	07:29	06:16	18:01 (4)	05:54	04:52	04:31	05:06	06:06	18:47 (4)	08:11	08:17
	16:33	17:42	18:42	13	18:14 (4)	20:47	21:46	22:17	21:49	18:00	15:58	15:45
25	08:33	07:27	06:13	18:00 (4)	05:52	04:50	04:31	05:08	06:09	18:47 (4)	08:11	08:17
	16:35	17:44	18:44	16	18:16 (4)	20:49	21:48	22:17	21:47	16:57	15:57	15:46
26	08:32	07:24	06:10	17:59 (4)	05:50	04:49	04:32	05:09	06:11	17:15	15:57	15:47
	16:37	17:46	18:46	18	18:17 (4)	20:51	21:50	22:17	21:46	16:55	15:56	15:47
27	08:30	07:22	06:08	18:00 (4)	05:47	04:47	04:32	05:11	06:13	17:15	15:57	15:48
	16:39	17:49	18:48	18	18:18 (4)	20:53	21:51	22:17	21:44	16:53	15:54	15:48
28	08:28	07:19	06:05	17:59 (4)	05:45	04:46	04:33	05:13	06:15	17:17	15:57	15:48
	16:41	17:51	18:50	18	18:17 (4)	20:55	21:53	22:16	21:42	16:50	15:53	15:48
29	08:26		07:02	19:00 (4)	05:42	04:44	04:33	05:15	06:17	17:19	15:57	15:48
	16:44		19:52	15	19:15 (4)	20:57	21:54	22:16	21:40	16:48	15:52	15:49
30	08:25		07:00	19:01 (4)	05:40	04:43	04:34	05:17	06:19	17:21	15:57	15:49
	16:46		19:54	13	19:14 (4)	20:59	21:56	22:16	21:38	16:46	15:51	15:50
31	08:23		06:57	19:03 (4)		04:42		05:19	06:21	17:26	15:57	15:50
	16:48		19:57	8	19:11 (4)	21:57		21:36	20:22	16:43		15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case			139						142			
Sun reduction			0,40						0,46			
Oper. time red.			1,00						1,00			
Wind dir. red.			1,00						1,00			
Total reduction			0,40						0,46			
Total, real			56						66			

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Skambas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (167)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:05	04:39 22:02	04:37 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	05:31 21:08	04:38 22:03	04:37 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:35 15:47
5	08:55 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:29 21:10	04:37 22:04	04:38 22:13	05:28 21:25	06:31 20:09	07:31 18:48	07:37 16:32	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 22:05	04:40 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:41 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:10	04:46 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	04:32 22:11	04:47 22:06	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:12 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 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 16:14	08:49 15:43
15	08:47 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	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	04:54 22:00	05:52 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 18:29	06:10 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:57 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:16	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:07 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:15	08:19 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 21:49	04:32 22:17	05:10 21:45	06:11 20:35	07:13 19:13	08:15 18:15	08:21 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 21:51	04:32 22:16	05:11 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:23 16:53	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:10	08:25 16:50	08:57 15:49
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:10	08:27 16:48	08:57 15:49
30	08:24 16:46		07:00 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:10	08:29 16:46	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:43		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Stacija "Goba" - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (163)
 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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:52	07:14 17:55	06:51 20:01	05:35 21:04	04:39 22:00	04:35 22:15	05:22 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:34	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:35 22:05	04:39 22:12	05:30 21:23	06:33 20:07	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 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 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:42 15:44
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:46 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:12	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:05 21:32	04:30 22:14	04:52 22:02	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:54 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:51	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:40 16:27	07:36 17:35	06:24 18:36	06:02 20:41	04:56 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:53	06:02 20:46	07:05 19:23	08:07 18:05	08:13 16:01	08:55 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	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:15	08:19 15:57	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:49 20:51	04:48 21:50	04:31 22:17	05:09 21:46	06:10 20:35	07:13 19:13	08:15 18:15	08:21 15:55	08:57 15:47
27	08:30 16:39	07:22 17:48	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17	05:11 21:44	06:12 20:33	07:15 19:10	08:18 18:10	08:23 16:53	08:57 15:47
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:10	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:10	08:27 16:48	08:57 15:49
30	08:25 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:10	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:43		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Straumes - Shadow Receptor: 1,0 x 1,0 Azimuth: 3,1° Slope: 90,0° (169)
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	05:37 (3) 06:07 (3)	04:35 22:15	05:44 (3) 06:13 (3)	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	05:36 21:04	04:40 22:00	05:37 (3) 06:07 (3)	04:36 22:15	05:43 (3) 06:13 (3)	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	05:38 (3) 06:08 (3)	04:37 22:14	05:43 (3) 06:13 (3)	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	05:38 (3) 06:08 (3)	04:38 22:14	05:44 (3) 06:14 (3)	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:58	08:13 17:00	07:06 18:02	06:44 20:07	05:29 21:10	04:37 22:04	05:38 (3) 06:08 (3)	04:39 22:13	05:44 (3) 06:14 (3)	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	05:27 21:12	04:36 22:06	05:38 (3) 06:08 (3)	04:40 22:12	05:44 (3) 06:14 (3)	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	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	05:38 (3) 06:09 (3)	04:41 22:12	05:44 (3) 06:14 (3)	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	05:38 (3) 06:08 (3)	04:42 22:11	05:44 (3) 06:15 (3)	05:35 21:19	06:37 20:01	07:37 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:04 17:09	06:56 18:10	06:33 20:16	05:20 21:18	04:34 22:09	05:39 (3) 06:09 (3)	04:43 22:10	05:44 (3) 06:15 (3)	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	05:39 (3) 06:08 (3)	04:44 22:09	05:44 (3) 06:15 (3)	05:39 21:15	06:41 19:56	07:42 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:51 18:15	06:28 20:20	05:16 21:22	04:32 22:11	05:40 (3) 06:09 (3)	04:46 22:08	05:45 (3) 06:16 (3)	05:41 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:46 15:44
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	05:39 (3) 06:08 (3)	04:47 22:07	05:45 (3) 06:16 (3)	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 22:12	05:40 (3) 06:09 (3)	04:48 22:05	05:45 (3) 06:16 (3)	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	05:40 (3) 06:09 (3)	04:50 22:04	05:45 (3) 06:15 (3)	05:47 21:05	06:49 19:45	07:50 18:25	07:57 16:15	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	04:31 22:14	05:41 (3) 06:10 (3)	04:51 22:03	05:46 (3) 06:16 (3)	05:49 21:03	06:51 19:42	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 22:14	05:43 (3) 06:09 (3)	04:53 22:02	05:45 (3) 06:16 (3)	05:51 21:00	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	05:41 (3) 06:09 (3)	04:54 22:00	05:46 (3) 06:16 (3)	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 22:15	05:41 (3) 06:09 (3)	04:56 21:59	05:46 (3) 06:16 (3)	05:55 20:56	06:57 19:34	07:58 18:15	08:05 16:08	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 22:16	05:41 (3) 06:09 (3)	04:58 21:57	05:46 (3) 06:15 (3)	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	04:59 21:39	04:30 22:16	05:42 (3) 06:10 (3)	04:59 21:56	05:47 (3) 06:15 (3)	05:59 20:51	07:01 19:29	08:03 18:10	08:09 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 22:16	05:42 (3) 06:10 (3)	05:01 21:54	05:47 (3) 06:14 (3)	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	05:42 (3) 06:10 (3)	05:03 21:53	05:48 (3) 06:14 (3)	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:55 15:45
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	05:42 (3) 06:10 (3)	05:04 21:51	05:49 (3) 06:14 (3)	06:05 20:43	07:07 19:21	08:09 18:03	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	05:43 (3) 06:11 (3)	05:06 21:49	05:49 (3) 06:13 (3)	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:58	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:43 (3) 06:11 (3)	05:08 21:47	05:50 (3) 06:13 (3)	06:09 20:38	07:11 19:15	07:13 16:58	08:19 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	05:43 (3) 06:12 (3)	05:10 21:46	05:50 (3) 06:11 (3)	06:11 20:36	07:13 19:13	07:16 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	05:43 (3) 06:12 (3)	05:12 21:44	05:52 (3) 06:11 (3)	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	05:43 (3) 06:12 (3)	05:13 21:42	05:54 (3) 06:09 (3)	06:15 20:30	07:17 19:07	07:20 16:51	08:25 15:53	08:57 15:49
29	08:26 16:44		07:02 19:53	05:43 20:57	04:45 21:55	04:34 22:16	05:43 (3) 06:12 (3)	05:15 21:40	05:56 (3) 06:08 (3)	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		07:00 19:55	05:40 20:59	04:43 21:56	04:34 22:16	05:43 (3) 06:13 (3)	05:17 21:38	05:59 (3) 06:03 (3)	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		06:57 19:57		04:42 21:58	04:33 22:16	05:43 (3) 06:07 (3)	05:19 21:36		06:21 20:23		07:26 16:44	08:57 15:52	
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216		
Total, worst case					447	873	799							
Sun reduction					0,59	0,57	0,48							
Oper. time red.					1,00	1,00	1,00							
Wind dir. red.					1,00	1,00	1,00							
Total reduction					0,59	0,57	0,48							
Total, real					263	498	382							

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Strautmali - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (193)
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	05:58 (4) 20:20	06:23 20:20	06:59 (3) 18:59	07:23 16:41
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:00	04:36 22:15	05:23 21:32	05:59 (4) 20:17	06:25 20:17	06:58 (3) 18:57	07:25 16:39
3	08:57 15:56	08:17 16:55	07:12 17:58	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:15	05:25 21:30	05:59 (4) 20:15	06:27 20:15	06:59 (3) 18:54	07:27 16:37
4	08:56 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:00 (4) 20:12	06:29 20:12	07:00 (3) 18:51	07:29 16:35
5	08:56 15:58	08:13 17:00	07:06 18:02	06:44 20:07	05:29 21:10	05:57 (4) 06:02 (4)	04:37 22:04	05:29 21:26	06:02 (4) 20:09	06:31 20:09	07:01 (3) 18:49	07:37 16:33
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	05:55 (4) 06:05 (4)	04:36 22:06	05:31 21:24	06:04 (4) 20:07	06:33 20:07	07:03 (3) 18:46	07:40 16:31
7	08:55 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	05:53 (4) 06:06 (4)	04:35 22:07	05:33 21:21	06:05 (4) 20:04	06:35 20:04	07:35 18:43	07:42 16:28
8	08:54 16:03	08:07 17:06	06:59 18:08	06:36 20:14	05:22 21:16	05:51 (4) 06:07 (4)	04:34 22:08	05:35 21:19	06:07 (4) 20:01	06:37 20:01	07:37 18:41	07:44 16:26
9	08:53 16:05	08:04 17:09	06:56 18:10	06:33 20:16	05:19 21:18	05:49 (4) 06:08 (4)	04:43 22:09	05:37 21:17	06:39 20:09	06:39 20:09	07:40 18:38	07:46 16:24
10	08:52 16:06	08:02 17:11	06:53 18:13	06:30 20:18	05:18 21:20	05:48 (4) 06:09 (4)	04:44 22:09	05:39 21:15	06:41 20:06	06:41 20:06	07:42 18:35	07:48 16:22
11	08:52 16:08	08:00 17:13	06:51 18:15	06:28 20:20	05:16 21:22	05:48 (4) 06:09 (4)	04:46 22:08	05:41 21:12	06:43 20:06	06:43 20:06	07:44 18:33	07:50 16:20
12	08:51 16:10	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	05:48 (4) 06:10 (4)	04:47 22:07	05:43 21:10	06:45 20:06	06:45 20:06	07:46 18:30	07:53 16:18
13	08:50 16:11	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	05:48 (4) 06:10 (4)	04:48 22:06	05:45 21:08	06:47 20:06	06:47 20:06	07:48 18:28	07:55 16:17
14	08:49 16:13	07:53 17:20	06:43 18:21	06:20 20:26	05:10 21:28	05:47 (4) 06:10 (4)	04:50 22:04	05:47 21:05	06:49 20:05	06:49 20:05	07:50 18:25	07:57 16:15
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	05:47 (4) 06:10 (4)	04:51 22:03	05:49 21:03	06:51 20:06	06:51 20:06	07:52 18:23	07:59 16:13
16	08:46 16:17	07:49 17:24	06:37 18:25	06:15 20:30	05:06 21:32	05:48 (4) 06:10 (4)	04:53 22:02	05:51 21:01	06:53 20:06	06:53 20:06	07:54 18:20	08:01 16:11
17	08:45 16:19	07:46 17:27	06:35 18:27	06:12 20:32	05:04 21:34	05:48 (4) 06:10 (4)	04:54 22:00	06:04 (4) 20:58	05:53 20:58	05:53 20:58	08:03 18:17	08:52 16:09
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:34	05:02 21:36	05:47 (4) 06:09 (4)	04:56 21:59	06:02 (4) 20:56	05:55 20:56	05:55 20:56	08:05 18:15	08:53 16:08
19	08:42 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:37	05:48 (4) 06:10 (4)	04:58 21:57	06:01 (4) 20:53	05:57 20:53	05:57 20:53	08:07 18:12	08:54 16:06
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:59 21:39	05:48 (4) 06:09 (4)	04:59 21:56	06:01 (4) 20:51	05:59 20:51	05:59 20:51	08:08 18:10	08:54 16:04
21	08:40 16:27	07:37 17:36	06:24 18:36	06:02 20:41	04:57 21:41	05:49 (4) 06:09 (4)	05:01 21:54	06:00 (4) 20:48	06:01 (4) 20:48	06:01 (4) 20:48	08:09 18:07	08:55 16:03
22	08:38 16:29	07:34 17:38	06:21 18:38	06:00 20:43	04:55 21:43	05:49 (4) 06:08 (4)	05:03 21:53	06:03 (4) 20:46	06:03 (4) 20:46	06:03 (4) 20:46	08:10 18:05	08:56 16:01
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:53 21:45	05:51 (4) 06:07 (4)	05:04 21:51	06:05 (4) 20:43	06:05 (4) 20:43	06:05 (4) 20:43	08:11 18:03	08:57 16:00
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 20:47	04:52 21:46	05:51 (4) 06:06 (4)	05:06 21:49	06:07 (4) 20:41	06:07 (4) 20:41	06:07 (4) 20:41	08:12 18:00	08:58 15:58
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	05:52 (4) 06:06 (4)	05:08 21:47	06:09 (4) 20:38	06:09 (4) 20:38	06:09 (4) 20:38	08:13 17:58	08:59 15:57
26	08:32 16:37	07:24 17:47	06:10 18:46	05:50 20:51	04:49 21:50	05:54 (4) 06:05 (4)	05:10 21:46	06:11 (4) 20:36	06:11 (4) 20:36	06:11 (4) 20:36	08:14 17:56	08:57 15:56
27	08:30 16:40	07:22 17:49	06:08 18:48	05:47 20:53	04:47 21:51	05:56 (4) 06:03 (4)	05:12 21:44	06:13 (4) 20:33	06:13 (4) 20:33	06:13 (4) 20:33	08:15 17:53	08:57 15:54
28	08:28 16:42	07:19 17:51	06:05 18:51	05:45 20:55	04:46 21:53	05:58 (4) 06:21 (4)	05:13 21:42	06:15 (4) 20:30	06:15 (4) 20:30	06:15 (4) 20:30	08:16 17:51	08:57 15:53
29	08:27 16:44	07:02 19:53	05:43 20:57	04:45 21:55	04:45 21:55	05:58 (4) 06:21 (4)	05:15 21:40	06:17 (4) 20:28	06:17 (4) 20:28	06:17 (4) 20:28	08:17 17:48	08:57 15:52
30	08:25 16:46	07:00 19:55	05:40 21:00	04:43 21:56	04:43 21:56	05:58 (4) 06:20 (4)	05:17 21:38	06:19 (4) 20:25	06:19 (4) 20:25	06:19 (4) 20:25	08:18 17:46	08:57 15:51
31	08:23 16:48	06:57 19:57	05:37 21:00	04:42 21:58	04:42 21:58	05:59 (4) 06:20 (4)	05:19 21:36	06:21 (4) 20:23	06:21 (4) 20:23	06:21 (4) 20:23	08:19 17:44	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case				340	406		291		354	112		
Sun reduction				0,47	0,59		0,48		0,51	0,46		
Oper. time red.				1,00	1,00		1,00		1,00	1,00		
Wind dir. red.				1,00	1,00		1,00		1,00	1,00		
Total reduction				0,47	0,59		0,48		0,51	0,46		
Total, real				159	238		139		180	52		

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Strautmalī - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (237)
 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	06:55 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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:01	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	07:38 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:21	06:35 20:04	07:36 18:43	07:42 16:29	08:40 15:46
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	07:38 18:41	07:44 16:26	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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
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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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:13	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 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	04:31 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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:35	07:59 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	04:58 21:57	05:57 20:53	06:59 19:32	08:01 18:13	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	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 21:47	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:59	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 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 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	08:16 18:15	08:22 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 20:53	04:47 21:52	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:23 16:53	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 20:31	07:17 19:07	08:20 18:05	08:25 16:51	08:57 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	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	08:24 18:05	08:29 16:46	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 18:44		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Svareni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (214)
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	08:58 15:53	08:21 16:51	07:17 17:53	06:54 19:59	05:38 21:02	04:41 22:00	04:35 22:16	05:21 21:35	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	05:36 21:04	04:40 22:01	04:36 22:16	05:23 21:32	06:25 20:18	07:25 18:57	07:31 16:39	08:33 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	06:49 20:03	05:33 21:06	04:39 22:02	04:36 22:15	05:25 21:30	06:27 20:15	07:27 18:54	07:33 16:37	08:34 15:48
4	08:57 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:37 22:04	04:37 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:36 16:35	08:36 15:47
5	08:56 15:58	08:13 16:59	07:07 18:02	06:44 20:07	05:29 21:10	04:37 22:05	04:38 22:14	05:29 21:26	06:31 20:10	07:31 18:49	07:38 16:33	08:38 15:47
6	08:56 16:00	08:11 17:02	07:04 18:04	06:41 20:10	05:26 21:12	04:36 22:06	04:39 22:13	05:31 21:24	06:33 20:07	07:34 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 20:12	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:22	06:35 20:04	07:36 18:43	07:42 16:28	08:41 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 21:20	06:37 20:02	07:38 18:41	07:44 16:26	08:42 15:45
9	08:54 16:04	08:05 17:09	06:56 18:11	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	08:53 16:06	08:03 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:39 21:15	06:41 19:56	07:42 18:36	07:49 16:22	08:45 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	05:41 21:13	06:43 19:54	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	06:46 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	07:54 17:20	06:43 18:21	06:20 20:26	05:10 21:28	04:31 22:14	04:50 22:05	05:47 21:06	06:49 19:45	07:50 18:25	07:57 16:15	08:50 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	05:49 21:03	06:51 19:43	07:52 18:23	07:59 16:13	08:51 15:43
16	08:47 16:17	07:49 17:24	06:38 18:26	06:15 20:31	05:06 21:32	04:30 22:15	04:53 22:02	05:51 21:01	06:53 19:40	07:54 18:20	08:02 16:11	08:52 15:43
17	08:46 16:19	07:47 17:27	06:35 18:28	06:12 20:33	05:04 21:34	04:30 22:16	04:54 22:01	05:53 20:58	06:55 19:37	07:57 18:17	08:04 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:35	07:59 18:15	08:06 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 21:58	05:57 20:53	06:59 19:32	08:01 18:12	08:08 16:06	08:54 15:43
20	08:42 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:58 21:40	04:30 22:17	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:04	08:55 15:43
21	08:40 16:27	07:37 17:36	06:24 18:36	06:02 20:41	04:57 21:42	04:30 22:17	05:01 21:55	06:01 20:49	07:03 19:26	08:05 18:07	08:12 16:03	08:55 15:44
22	08:39 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	06:19 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 18:03	08:16 16:00	08:56 15:45
24	08:35 16:33	07:30 17:42	06:16 18:42	05:55 20:47	04:52 21:47	04:31 22:17	05:06 21:50	06:07 20:41	07:09 19:18	08:12 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 21:49	04:31 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:14 18:16	08:20 15:57	08:57 15:46
26	08:32 16:37	07:25 17:47	06:11 18:47	05:50 20:51	04:49 21:50	04:32 22:17	05:10 21:46	06:11 20:36	07:13 19:13	08:16 18:15	08:22 15:56	08:58 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 20:54	04:47 21:52	04:32 22:17	05:11 21:44	06:13 20:33	07:15 19:10	08:18 18:10	08:24 16:53	08:58 15:48
28	08:29 16:42	07:19 17:51	06:05 18:51	05:45 20:56	04:46 21:53	04:33 22:17	05:13 21:42	06:15 20:31	07:17 19:07	08:20 18:05	08:26 16:51	08:58 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:44 21:55	04:33 22:17	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:58 15:49
30	08:25 16:46		07:00 19:55	05:40 21:00	04:43 21:57	04:34 22:16	05:17 21:39	06:19 20:25	07:21 19:02	08:25 18:00	08:29 16:46	08:58 15:51
31	08:23 16:48			06:57 19:57		04:42 21:58	05:19 21:37	06:21 20:23		07:27 18:44		08:58 15:52
Potential sun hours	234	266	366	426	509	530	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Vecbirznieki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (164)
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	08:21	07:17	06:54	05:38			04:41	04:35		05:21	05:57 (3)	06:23	07:23	07:29	08:31
	15:53	16:51	17:53	19:59	21:02			21:59	22:15		21:34	21	06:18 (3)	20:20	18:59	16:41
2	08:57	08:19	07:14	06:52	05:36			04:40	04:36		05:23		05:58 (3)	06:25	07:25	07:31
	15:55	16:53	17:55	20:01	21:04			22:00	22:15		21:32	19	06:17 (3)	20:17	18:57	16:39
3	08:57	08:17	07:12	06:49	05:33			04:39	04:37		05:25		05:58 (3)	06:27	07:27	07:33
	15:56	16:55	17:58	20:03	21:06			22:02	22:14		21:30	18	06:16 (3)	20:15	18:54	16:37
4	08:56	08:15	07:09	06:46	05:31			04:38	04:38		05:27		06:00 (3)	06:29	07:29	07:35
	15:57	16:57	18:00	20:05	21:08			22:03	22:14		21:28	15	06:15 (3)	20:12	18:51	16:35
5	08:56	08:13	07:06	06:44	05:29			04:37	04:39		05:29		06:02 (3)	06:31	07:31	07:37
	15:59	17:00	18:02	20:07	21:10			22:04	22:13		21:26	12	06:14 (3)	20:09	18:49	16:33
6	08:55	08:11	07:04	06:41	05:27	05:55 (3)		04:36	04:40		05:31		06:04 (3)	06:33	07:33	07:40
	16:00	17:02	18:04	20:09	21:12	4	05:59 (3)	22:06	22:12		21:24	8	06:12 (3)	20:07	18:46	16:31
7	08:55	08:09	07:01	06:38	05:24	05:53 (3)		04:35	04:41		05:33			06:35	07:35	07:42
	16:01	17:04	18:06	20:11	21:14	9	06:02 (3)	22:07	22:12		21:21		20:04	18:43	16:28	15:45
8	08:54	08:07	06:59	06:36	05:22	05:51 (3)		04:34	04:42		05:35		06:37	07:37	07:44	08:42
	16:03	17:06	18:08	20:14	21:16	13	06:04 (3)	22:08	22:11		21:19		20:01	18:41	16:26	15:45
9	08:53	08:04	06:56	06:33	05:20	05:49 (3)		04:34	04:43		05:37		06:39	07:40	07:46	08:43
	16:05	17:09	18:10	20:16	21:18	16	06:05 (3)	22:09	22:10		21:17		19:59	18:38	16:24	15:44
10	08:52	08:02	06:53	06:30	05:18	05:47 (3)		04:33	04:44		05:39		06:41	07:42	07:48	08:44
	16:06	17:11	18:13	20:18	21:20	19	06:06 (3)	22:10	22:09		21:15		19:56	18:35	16:22	15:44
11	08:52	08:00	06:51	06:28	05:16	05:46 (3)		04:32	04:46		05:41		06:43	07:44	07:50	08:46
	16:08	17:13	18:15	20:20	21:22	20	06:06 (3)	22:11	22:08		21:12		19:53	18:33	16:20	15:44
12	08:51	07:58	06:48	06:25	05:14	05:46 (3)		04:32	04:47	06:05 (3)	05:43		06:45	07:46	07:53	08:47
	16:10	17:15	18:17	20:22	21:24	22	06:08 (3)	22:12	22:07	2	06:07 (3)		19:51	18:30	16:18	15:43
13	08:50	07:56	06:45	06:23	05:12	05:46 (3)		04:31	04:48	06:02 (3)	05:45		06:47	07:48	07:55	08:48
	16:11	17:18	18:19	20:24	21:26	22	06:08 (3)	22:12	22:05	8	06:10 (3)		19:48	18:28	16:17	15:43
14	08:49	07:53	06:43	06:20	05:10	05:45 (3)		04:31	04:50	06:00 (3)	05:47		06:49	07:50	07:57	08:49
	16:13	17:20	18:21	20:26	21:28	23	06:08 (3)	22:13	22:04	11	06:11 (3)		19:45	18:25	16:15	15:43
15	08:47	07:51	06:40	06:17	05:08	05:45 (3)		04:31	04:51	06:00 (3)	05:49		06:51	07:52	07:59	08:50
	16:15	17:22	18:23	20:28	21:30	23	06:08 (3)	22:14	22:03	13	06:13 (3)		19:43	18:23	16:13	15:43
16	08:46	07:49	06:37	06:15	05:06	05:45 (3)		04:30	04:53	05:59 (3)	05:51		06:53	07:54	08:01	08:51
	16:17	17:24	18:25	20:30	21:32	24	06:09 (3)	22:14	22:02	15	06:14 (3)		19:40	18:20	16:11	15:43
17	08:45	07:46	06:35	06:12	05:04	05:45 (3)		04:30	04:54	05:59 (3)	05:53		06:55	07:56	08:03	08:52
	16:19	17:27	18:27	20:32	21:34	23	06:08 (3)	22:15	22:00	16	06:15 (3)		19:37	18:17	16:09	15:43
18	08:44	07:44	06:32	06:10	05:02	05:45 (3)		04:30	04:56	05:58 (3)	05:55		06:57	07:58	08:05	08:53
	16:21	17:29	18:30	20:34	21:36	23	06:08 (3)	22:15	21:59	18	06:16 (3)		19:34	18:15	16:08	15:43
19	08:42	07:42	06:29	06:07	05:00	05:45 (3)		04:30	04:58	05:57 (3)	05:57		06:59	08:01	08:07	08:54
	16:23	17:31	18:32	20:37	21:37	23	06:08 (3)	22:16	21:57	19	06:16 (3)		19:32	18:12	16:06	15:43
20	08:41	07:39	06:27	06:05	04:59	05:45 (3)		04:30	04:59	05:57 (3)	05:53		07:01	08:03	08:09	08:54
	16:25	17:33	18:34	20:39	21:39	23	06:08 (3)	22:16	21:56	20	06:17 (3)		19:29	18:10	16:04	15:44
21	08:40	07:37	06:24	06:02	04:57	05:46 (3)		04:30	05:01	05:57 (3)	06:01		07:03	08:05	08:12	08:55
	16:27	17:36	18:36	20:41	21:41	22	06:08 (3)	22:17	21:54	21	06:18 (3)		19:26	18:07	16:03	15:44
22	08:38	07:34	06:21	06:00	04:55	05:46 (3)		04:30	05:03	05:56 (3)	06:03		07:05	08:07	08:14	08:55
	16:29	17:38	18:38	20:43	21:43	21	06:07 (3)	22:17	21:53	22	06:18 (3)		19:24	18:05	16:01	15:45
23	08:37	07:32	06:19	05:57	04:54	05:47 (3)		04:31	05:04	05:56 (3)	06:05		07:07	08:09	08:16	08:56
	16:31	17:40	18:40	20:45	21:45	20	06:07 (3)	22:17	21:51	23	06:19 (3)		19:21	18:03	16:00	15:45
24	08:35	07:29	06:16	05:55	04:52	05:47 (3)		04:31	05:06	05:55 (3)	06:07		07:09	08:11	08:18	08:56
	16:33	17:42	18:42	20:47	21:46	19	06:06 (3)	22:17	21:49	23	06:18 (3)		19:18	18:00	15:59	15:46
25	08:33	07:27	06:13	05:52	04:50	05:48 (3)		04:31	05:08	05:56 (3)	06:09		07:11	07:13	08:19	08:57
	16:35	17:44	18:44	20:49	21:48	18	06:06 (3)	22:17	21:47	23	06:19 (3)		19:15	16:58	15:57	15:46
26	08:32	07:24	06:11	05:50	04:49	05:49 (3)		04:32	05:10	05:56 (3)	06:11		07:13	07:16	08:21	08:57
	16:37	17:47	18:46	20:51	21:50	17	06:06 (3)	22:17	21:46	23	06:19 (3)		19:13	16:55	15:56	15:47
27	08:30	07:22	06:08	05:47	04:47	05:50 (3)		04:32	05:12	05:55 (3)	06:13		07:15	07:18	08:23	08:57
	16:40	17:49	18:48	20:53	21:51	15	06:05 (3)	22:17	21:44	24	06:19 (3)		19:10	16:53	15:55	15:48
28	08:28	07:19	06:05	05:45	04:46	05:51 (3)		04:33	05:13	05:56 (3)	06:15		07:17	07:20	08:25	08:57
	16:42	17:51	18:51	20:55	21:53	14	06:05 (3)	22:17	21:42	23	06:19 (3)		19:07	16:51	15:53	15:49
29	08:27		07:02	05:43	04:45	05:51 (3)		04:34	05:15	05:56 (3)	06:17		07:19	07:22	08:27	08:57
	16:44		19:53	20:57	21:55	12	06:03 (3)	22:16	21:40	23	06:19 (3)		19:05	16:48	15:52	15:50
30	08:25		07:00	05:40	04:43	05:53 (3)		04:34	05:17	05:56 (3)	06:19		07:21	07:24	08:29	08:57
	16:46		19:55	21:00	21:56	9	06:02 (3)	22:16	21:38	22	06:18 (3)		19:02	16:46	15:51	15:51
31	08:23			06:57	04:42	05:55 (3)			05:19	05:56 (3)	06:21			07:26		08:57
	16:48			19:57	21:58	5	06:00 (3)		21:36	22	06:18 (3)			16:44		15:52
Potential sun hours	235	266	366	426	508		529	530		470		385	324	247	216	
Total, worst case					459				371		93					
Sun reduction					0,59				0,48		0,51					
Oper. time red.					1,00				1,00		1,00					
Wind dir. red.					1,00				1,00		1,00					
Total reduction					0,59				0,48		0,51					
Total, real					270				177		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)
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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

Calculation: Flickering_Vestas_V162 Shadow receptor: Vecdimanti - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (186)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:52	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:35 22:15	05:22 21:32	06:25 20:17	07:31 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:05	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:34	08:35 15:47
5	08:55 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:25	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:03 18:04	06:41 20:09	05:26 21:12	04:35 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:40 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:10	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:11	04:47 22:06	05:42 21:10	06:45 19:50	07:45 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	04:54 22:00	05:52 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 17:28	06:32 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:56 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:31 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:15	08:19 15:57	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:49 20:51	04:48 21:50	04:31 22:17	05:09 21:45	06:10 20:35	07:13 19:12	08:15 18:15	08:21 15:56	08:57 15:47
27	08:30 16:39	07:21 17:48	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17	05:11 21:44	06:12 20:33	07:15 19:10	08:17 18:10	08:23 16:53	08:57 15:48
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:14 20:30	07:17 19:07	08:19 18:10	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:21 18:15	08:27 16:48	08:57 15:49
30	08:24 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:22 18:15	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:15		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Vecdzilnas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (210)
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	08:21	07:17	06:54	05:38	04:41	04:35	05:21	06:23	07:23	07:29	08:30
	15:53	16:50	17:53	19:59	21:01	21:59	22:16	21:34	20:20	18:59	16:41	15:50
2	08:57	08:19	07:14	06:51	05:35	04:39	04:35	05:22	06:25	07:25	07:31	08:32
	15:54	16:52	17:55	20:01	21:04	22:00	22:15	21:32	20:17	18:56	16:39	15:49
3	08:57	08:17	07:11	06:49	05:33	04:38	04:36	05:24	06:27	07:27	07:33	08:34
	15:55	16:55	17:57	20:03	21:06	22:02	22:14	21:30	20:15	18:54	16:37	15:48
4	08:56	08:15	07:09	06:46	05:31	04:37	04:37	05:26	06:29	07:29	07:35	08:36
	15:57	16:57	17:59	20:05	21:08	22:03	22:14	21:28	20:12	18:51	16:34	15:47
5	08:56	08:13	07:06	06:43	05:28	04:36	04:38	05:28	06:31	07:31	07:37	08:37
	15:58	16:59	18:02	20:07	21:10	22:04	22:13	21:26	20:09	18:48	16:32	15:46
6	08:55	08:11	07:04	06:41	05:26	04:35	04:39	05:30	06:33	07:33	07:39	08:39
	16:00	17:01	18:04	20:09	21:12	22:06	22:12	21:23	20:07	18:46	16:30	15:46
7	08:55	08:09	07:01	06:38	05:24	04:35	04:40	05:32	06:35	07:35	07:42	08:40
	16:01	17:04	18:06	20:11	21:14	22:07	22:12	21:21	20:04	18:43	16:28	15:45
8	08:54	08:07	06:58	06:35	05:22	04:34	04:42	05:34	06:37	07:37	07:44	08:42
	16:03	17:06	18:08	20:13	21:16	22:08	22:11	21:19	20:01	18:40	16:26	15:44
9	08:53	08:04	06:56	06:33	05:20	04:33	04:43	05:36	06:39	07:39	07:46	08:43
	16:04	17:08	18:10	20:15	21:18	22:09	22:10	21:17	19:59	18:38	16:24	15:44
10	08:52	08:02	06:53	06:30	05:18	04:32	04:44	05:38	06:41	07:41	07:48	08:44
	16:06	17:11	18:12	20:18	21:20	22:10	22:09	21:15	19:56	18:35	16:22	15:44
11	08:51	08:00	06:50	06:28	05:15	04:32	04:45	05:40	06:43	07:44	07:50	08:46
	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	07:58	06:48	06:25	05:13	04:31	04:47	05:42	06:45	07:46	07:53	08:47
	16:09	17:15	18:17	20:22	21:24	22:12	22:07	21:10	19:50	18:30	16:18	15:43
13	08:50	07:55	06:45	06:22	05:11	04:31	04:48	05:44	06:47	07:48	07:55	08:48
	16:11	17:17	18:19	20:24	21:26	22:12	22:05	21:08	19:48	18:27	16:16	15:43
14	08:49	07:53	06:42	06:20	05:09	04:31	04:49	05:46	06:49	07:50	07:57	08:49
	16:13	17:20	18:21	20:26	21:28	22:13	22:04	21:05	19:45	18:25	16:14	15:43
15	08:47	07:51	06:40	06:17	05:07	04:30	04:51	05:48	06:51	07:52	07:59	08:50
	16:15	17:22	18:23	20:28	21:30	22:14	22:03	21:03	19:42	18:22	16:13	15:42
16	08:46	07:49	06:37	06:15	05:05	04:30	04:52	05:50	06:53	07:54	08:01	08:51
	16:17	17:24	18:25	20:30	21:32	22:14	22:02	21:00	19:40	18:20	16:11	15:42
17	08:45	07:46	06:34	06:12	05:04	04:30	04:54	05:52	06:55	07:56	08:03	08:52
	16:19	17:26	18:27	20:32	21:34	22:15	22:00	20:58	19:37	18:17	16:09	15:43
18	08:44	07:44	06:32	06:09	05:02	04:30	04:56	05:54	06:57	07:58	08:05	08:53
	16:21	17:29	18:29	20:34	21:36	22:15	21:59	20:56	19:34	18:15	16:07	15:43
19	08:42	07:41	06:29	06:07	05:00	04:30	04:57	05:56	06:59	08:00	08:07	08:54
	16:23	17:31	18:31	20:36	21:37	22:16	21:57	20:53	19:31	18:12	16:06	15:43
20	08:41	07:39	06:26	06:04	04:58	04:30	04:59	05:58	07:01	08:03	08:09	08:54
	16:25	17:33	18:34	20:38	21:39	22:16	21:56	20:51	19:29	18:10	16:04	15:43
21	08:40	07:37	06:24	06:02	04:56	04:30	05:01	06:00	07:03	08:05	08:11	08:55
	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	07:34	06:21	05:59	04:55	04:30	05:02	06:02	07:05	08:07	08:13	08:55
	16:29	17:37	18:38	20:43	21:43	22:17	21:53	20:46	19:23	18:05	16:01	15:44
23	08:37	07:32	06:18	05:57	04:53	04:30	05:04	06:04	07:07	08:09	08:15	08:56
	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	07:29	06:16	05:54	04:52	04:31	05:06	06:06	07:09	08:11	08:17	08:56
	16:33	17:42	18:42	20:47	21:46	22:17	21:49	20:41	19:18	18:00	15:58	15:45
25	08:33	07:27	06:13	05:52	04:50	04:31	05:08	06:08	07:11	08:13	08:19	08:57
	16:35	17:44	18:44	20:49	21:48	22:17	21:47	20:38	19:15	17:57	15:57	15:46
26	08:32	07:24	06:10	05:49	04:48	04:31	05:09	06:10	07:13	08:15	08:21	08:57
	16:37	17:46	18:46	20:51	21:50	22:17	21:46	20:35	19:13	17:55	15:55	15:47
27	08:30	07:22	06:08	05:47	04:47	04:32	05:11	06:13	07:15	08:18	08:23	08:57
	16:39	17:49	18:48	20:53	21:51	22:17	21:44	20:33	19:10	17:53	15:54	15:47
28	08:28	07:19	06:05	05:45	04:46	04:32	05:13	06:15	07:17	08:20	08:25	08:57
	16:41	17:51	18:50	20:55	21:53	22:17	21:42	20:30	19:07	17:50	15:53	15:48
29	08:26		07:02	05:42	04:44	04:33	05:15	06:17	07:19	08:22	08:27	08:57
	16:44		19:52	20:57	21:55	22:16	21:40	20:28	19:04	17:48	15:52	15:49
30	08:25		07:00	05:40	04:43	04:34	05:17	06:19	07:21	08:24	08:29	08:57
	16:46		19:55	20:59	21:56	22:16	21:38	20:25	19:02	17:46	15:51	15:50
31	08:23		06:57		04:42		05:19	06:21		07:26		08:57
	16:48		19:57		21:58		21:36	20:22		16:43		15:51
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Viesturu muiža - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (227)
 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	06:55 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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	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 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
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31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:27 18:44		08:58 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Virši - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (207)
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 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:30 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:14	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
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31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:26 16:44		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Veverzemnieki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (219)
 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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:05	04:39 22:01	04:37 22:14	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
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21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:57 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:16	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:31 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:31 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:07 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:15	08:19 15:57	08:56 15:46
26	08:31 16:37	07:24 17:46	06:10 18:46	05:50 20:51	04:49 21:49	04:32 22:17	05:09 21:45	06:11 20:35	07:13 19:13	08:15 18:15	08:21 15:56	08:57 15:47
27	08:30 16:39	07:21 17:49	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:16	05:11 21:44	06:13 20:33	07:15 19:10	08:17 18:10	08:23 16:53	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:19 18:10	08:25 16:50	08:57 15:49
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:21 18:10	08:27 16:48	08:57 15:49
30	08:24 16:46		07:00 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:22 18:10	08:28 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:10		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Vitoli - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (238)
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	06:55 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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:01	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 15:57	08:15 16:57	07:09 18:00	06:47 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	07:07 18:02	06:44 20:07	05:29 21:10	04:37 22:04	04:39 22:13	05:29 21:26	06:31 20:10	07:31 18:49	07:38 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:22	06:35 20:04	07:36 18:43	07:42 16:29	08:40 15:46
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 20:02	07:38 18:41	07:44 16:27	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 22:09	04:43 22:10	05:37 21:17	06:39 19:59	07:40 18:38	07:46 16:24	08:43 15:45
10	08:53 16:06	08:02 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:45 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:21	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:32 22:13	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 20:28	05:08 21:30	04:31 22:14	04:52 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 18:26	06:15 20:30	05:06 21:32	04:31 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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:10	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:35	07:59 18:15	08:06 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	04:58 21:57	05:57 20:53	06:59 19:32	08:01 18:13	08:08 16:06	08:54 15:44
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:02	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:05 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 21:47	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:59	08:57 15:46
25	08:34 16:35	07:27 17:45	06:13 18:44	05:52 20:49	04:50 21:48	04:32 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:13 18:05	08:20 16:58	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 18:47	05:50 20:51	04:49 21:50	04:32 22:17	05:10 21:46	06:11 20:36	07:13 19:13	08:16 18:05	08:22 16:55	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:48 20:53	04:48 21:52	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:03	08:23 16:53	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	05:14 21:42	06:15 20:31	07:17 19:08	08:20 18:01	08:25 16:51	08:58 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	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	08:24 18:00	08:29 16:46	08:58 15:51
31	08:23 16:49		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:27 18:59		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Zarini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (183)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	23 20:50 (4) 21:13 (4)	04:35 22:15	21 20:57 (4) 21:18 (4)	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:03	04:40 22:00	23 20:50 (4) 21:13 (4)	04:36 22:15	21 20:57 (4) 21:18 (4)	05:23 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:39 22:02	23 20:50 (4) 21:13 (4)	04:37 22:14	21 20:58 (4) 21:19 (4)	05:25 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	06:46 20:05	05:31 21:08	04:37 22:03	23 20:51 (4) 21:14 (4)	04:37 22:14	21 20:58 (4) 21:19 (4)	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:35 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	22 20:52 (4) 21:14 (4)	04:38 22:13	22 20:58 (4) 21:20 (4)	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	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 22:05	22 20:52 (4) 21:14 (4)	04:40 22:12	22 20:58 (4) 21:20 (4)	05:30 21:23	06:33 20:07	07:33 18:46	07:39 16:30	08:39 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07	22 20:51 (4) 21:13 (4)	04:41 22:11	22 20:58 (4) 21:20 (4)	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	05:22 21:16	04:34 22:08	22 20:52 (4) 21:14 (4)	04:42 22:11	22 20:58 (4) 21:20 (4)	05:34 21:19	06:37 20:01	07:37 18:41	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	21 20:52 (4) 21:13 (4)	04:43 22:10	23 20:58 (4) 21:21 (4)	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	21 20:53 (4) 21:14 (4)	04:44 22:09	23 20:58 (4) 21:21 (4)	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	05:16 21:22	04:32 22:11	20 20:53 (4) 21:13 (4)	04:46 22:08	23 20:58 (4) 21:21 (4)	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	04:32 22:11	20 20:54 (4) 21:14 (4)	04:47 22:06	23 20:59 (4) 21:22 (4)	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:12 21:26	04:31 22:12	20 20:54 (4) 21:14 (4)	04:48 22:05	24 20:58 (4) 21:22 (4)	05:44 21:07	06:47 19:52 (3)	07:47 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:10 21:28	04:31 22:13	19 20:55 (4) 21:14 (4)	04:50 22:04	23 20:58 (4) 21:21 (4)	05:46 21:05	06:49 19:50 (3)	07:50 18:25	07:57 16:15	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	04:30 22:14	20 20:54 (4) 21:14 (4)	04:51 22:03	23 20:59 (4) 21:22 (4)	05:48 21:03	06:51 19:48	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	20 20:55 (4) 21:14 (4)	04:53 22:01	23 20:59 (4) 21:22 (4)	05:50 21:00	06:53 19:49 (3)	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	04:30 22:15	19 20:55 (4) 21:14 (4)	04:54 22:00	22 20:59 (4) 21:21 (4)	05:52 20:58	06:55 19:48 (3)	07:56 18:17	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	05:02 21:35	04:30 22:15	19 20:55 (4) 21:14 (4)	04:56 21:59	21 20:59 (4) 21:21 (4)	05:54 20:55	06:57 19:49 (3)	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 22:16	19 20:56 (4) 21:14 (4)	04:57 21:57	20 20:59 (4) 21:20 (4)	05:55 20:53	06:59 19:47 (3)	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	18 20:56 (4) 21:14 (4)	04:59 21:56	20 20:59 (4) 21:19 (4)	05:58 20:51	07:01 19:45 (3)	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:16	18 20:57 (4) 21:15 (4)	05:01 21:54	19 20:59 (4) 21:17 (4)	06:00 20:48	07:03 19:43 (3)	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	18 20:57 (4) 21:15 (4)	05:02 21:52	17 20:59 (4) 21:16 (4)	06:03 20:46	07:05 19:43 (3)	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	18 20:57 (4) 21:15 (4)	05:04 21:51	14 20:59 (4) 21:14 (4)	06:05 20:43	07:07 19:43 (3)	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	18 20:57 (4) 21:15 (4)	05:06 21:49	12 20:59 (4) 21:13 (4)	06:07 20:40	07:09 19:43 (3)	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	18 20:57 (4) 21:16 (4)	05:08 21:47	10 20:59 (4) 21:11 (4)	06:09 20:38	07:11 19:46 (3)	08:19 17:15	08:57 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	19 20:57 (4) 21:16 (4)	05:09 21:45	7 20:59 (4) 21:09 (4)	06:11 20:35	07:13 19:46 (3)	08:21 17:18	08:57 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 21:51	04:32 22:17	19 20:58 (4) 21:17 (4)	05:11 21:44	4 20:59 (4) 21:17 (4)	06:13 20:33	07:15 19:47 (3)	08:23 17:18	08:57 15:54	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	19 20:58 (4) 21:17 (4)	05:13 21:42	15 20:59 (4) 21:17 (4)	06:15 20:30	07:17 19:48 (3)	08:25 17:20	08:57 15:53	08:57 15:49
29	08:26 16:44	07:02 17:52	05:42 18:52	05:42 20:57	04:44 21:54	04:33 22:16	19 20:58 (4) 21:17 (4)	05:15 21:40	12 20:59 (4) 21:17 (4)	06:17 20:28	07:19 19:50 (3)	08:27 17:22	08:57 15:52	08:57 15:49
30	08:24 16:46	07:00 17:55	05:40 18:55	05:40 20:59	04:43 21:56	04:34 22:16	19 20:58 (4) 21:18 (4)	05:17 21:38	7 20:59 (4) 21:18 (4)	06:19 20:25	07:21 19:02	08:29 16:46	08:57 15:51	08:57 15:50
31	08:23 16:48	06:57 17:57	05:37 18:57	05:27 20:59	04:42 21:57	04:34 22:16	20 20:58 (4) 21:18 (4)	05:19 21:36	20:22 20:22	06:21 20:22	07:26 16:43	08:30 15:52	08:57 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	602	530	470	319	385	323	247	216
Total, worst case				319	247		602	503		319				
Sun reduction				0,47	0,59		0,57	0,48		0,51				
Oper. time red.				1,00	1,00		1,00	1,00		1,00				
Wind dir. red.				1,00	1,00		1,00	1,00		1,00				
Total reduction				0,47	0,59		0,57	0,48		0,51				
Total, real				149	145		343	240		163				

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Zeltini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (175)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:28 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:51 20:01	05:35 21:03	04:39 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:56	07:31 16:39	08:32 15:49
3	08:56 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	05:24 21:30	06:27 20:14	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 17:59	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 16:35	08:35 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 16:00	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:05	04:39 22:12	05:30 21:23	06:33 20:06	07:33 18:46	07:39 16:30	08:38 15:46
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:06	04:40 22:11	05:32 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:06 17:06	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:41 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:17	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:14	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:44
11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:45 15:43
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:11	04:47 22:06	05:42 21:10	06:45 19:50	07:46 18:30	07:52 16:18	08:47 15:43
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	05:11 21:26	04:31 22:12	04:48 22:05	05:44 21:07	06:47 19:48	07:48 18:27	07:55 16:16	08:48 15:43
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:14	08:49 15:43
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	04:53 22:01	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:33	04:30 22:15	04:54 22:00	05:52 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 18:29	06:09 20:34	05:02 21:35	04:30 22:15	04:56 21:59	05:54 20:55	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:53 15:43
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:50	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:40	04:57 21:41	04:30 22:16	05:01 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:03	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:52	06:02 20:45	07:05 19:23	08:07 18:05	08:13 16:01	08:55 15:44
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:44	04:30 22:17	05:04 21:51	06:04 20:43	07:07 19:21	08:09 18:02	08:15 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:06 20:40	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:08 20:38	07:11 19:15	08:13 18:05	08:19 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 21:45	06:10 20:35	07:13 19:12	08:15 18:05	08:21 15:56	08:57 15:47
27	08:30 16:39	07:22 17:48	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	08:18 18:05	08:23 16:53	08:57 15:48
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:33 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:00	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:22 18:04	08:27 16:48	08:57 15:49
30	08:24 16:46		06:59 19:54	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:05	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:57		05:19 21:36	06:21 20:22		07:26 18:06		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Ziemeļnieki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (180)
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	07:16 17:53	06:54 19:59	05:38 21:01	04:40 21:59	04:34 22:16	05:20 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 16:52	07:14 17:55	06:51 20:01	05:35 21:04	04:39 22:00	04:35 22:15	05:22 21:32	06:25 20:17	07:25 18:56	07:31 16:39	08:32 15:49
3	08:57 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:15	05:24 21:30	06:27 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 17:59	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 16:34	08:36 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:43 20:07	05:28 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:48	07:37 16:32	08:37 15:46
6	08:55 15:59	08:11 17:01	07:04 18:04	06:41 20:09	05:26 21:12	04:35 22:06	04:39 22:12	05:30 21:23	06:33 20:07	07:33 18:46	07:39 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	04:40 22:12	05:32 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	06:58 18:08	06:35 20:13	05:22 21:16	04:34 22:08	04:41 22:11	05:34 21:19	06:37 20:01	07:37 18:40	07:44 16:26	08:42 15:44
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:58	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:10	06:53 18:12	06:30 20:18	05:17 21:20	04:32 22:10	04:44 22:09	05:38 21:15	06:41 19:56	07:41 18:35	07:48 16:22	08:44 15:43
11	08:51 16:07	08:00 17:13	06:50 18:14	06:28 20:20	05:15 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:43 18:33	07:50 16:20	08:46 15:43
12	08:51 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:13 21:24	04:31 22:12	04:47 22:07	05:42 21:10	06:45 19:50	07:46 18:30	07:53 16:18	08:47 15:43
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15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:07 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 18:22	07:59 16:12	08:50 15:42
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	05:05 21:32	04:30 22:14	04:52 22:02	05:50 21:00	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:42
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 20:58	06:55 19:37	07:56 18:17	08:03 16:09	08:52 15:42
18	08:44 16:20	07:44 17:28	06:32 18:29	06:09 20:34	05:02 21:36	04:30 22:16	04:56 21:59	05:54 20:56	06:57 19:34	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:22	07:41 17:31	06:29 18:31	06:07 20:36	05:00 21:37	04:30 22:16	04:57 21:57	05:56 20:53	06:59 19:31	08:00 18:12	08:07 16:06	08:54 15:43
20	08:41 16:24	07:39 17:33	06:26 18:34	06:04 20:38	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:51	07:01 19:29	08:02 18:10	08:09 16:04	08:54 15:43
21	08:40 16:26	07:37 17:35	06:24 18:36	06:02 20:41	04:56 21:41	04:30 22:17	05:00 21:54	06:00 20:48	07:03 19:26	08:05 18:07	08:11 16:02	08:55 15:44
22	08:38 16:29	07:34 17:37	06:21 18:38	05:59 20:43	04:55 21:43	04:30 22:17	05:02 21:53	06:02 20:46	07:05 19:23	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	06:04 20:43	07:07 19:21	08:09 18:02	08:16 15:59	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:54 20:47	04:51 21:46	04:30 22:17	05:06 21:49	06:06 20:41	07:09 19:18	08:11 18:00	08:17 15:58	08:56 15:45
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:07 21:47	06:08 20:38	07:11 19:15	08:13 18:15	08:19 15:57	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:49 20:51	04:48 21:50	04:31 22:17	05:09 21:46	06:10 20:35	07:13 19:13	08:15 18:15	08:21 15:55	08:57 15:47
27	08:30 16:39	07:22 17:48	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17	05:11 21:44	06:12 20:33	07:15 19:10	08:18 18:10	08:23 16:53	08:57 15:47
28	08:28 16:41	07:19 17:51	06:05 18:50	05:45 20:55	04:46 21:53	04:32 22:17	05:13 21:42	06:14 20:30	07:17 19:07	08:20 18:15	08:25 16:50	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:55	04:33 22:16	05:15 21:40	06:16 20:28	07:19 19:04	08:22 18:15	08:27 16:48	08:57 15:49
30	08:25 16:46		06:59 19:55	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:15	08:29 16:46	08:57 15:50
31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:22		07:26 18:15		08:57 15:51
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Zustreni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (187)
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 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:30 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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	08:56 15:56	08:17 16:55	07:12 17:57	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:14	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:35 15:48
5	08:56 15:59	08:13 17:00	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	05:27 21:12	04:36 22:05	04:40 22:12	05:31 21:23	06:33 20:07	07:33 18:46	07:40 16:31	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 16:05	08:04 17:09	06:56 18:10	06:33 20:16	05:20 21:18	04:34 22:09	04:43 22:10	05:37 21:17	06:39 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	05:39 21:15	06:41 19:56	07:42 18:35	07:48 16:22	08:44 15:44
11	08:51 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	05:41 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:46 15:44
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 22:12	04:48 22:05	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	08:48 15:43
14	08:48 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	08:47 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 18:23	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 22:14	04:53 22:02	05:51 21:00	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 22:15	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	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 22:16	04:58 21:57	05:57 20:53	06:59 19:32	08:00 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	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:09 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 22:16	05:01 21:54	06:01 20:48	07:03 19:26	08:05 18:07	08:11 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	08:13 16:01	08:55 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	08:15 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	08:17 15:59	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:05	08:19 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 20:35	07:13 19:13	08:16 18:05	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	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:03	08:23 16:53	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 22:16	05:13 21:42	06:15 20:30	07:17 19:07	08:20 18:01	08:25 16:51	08:57 15:49
29	08:26 16:44		07:02 19:53	05:43 20:57	04:45 21:54	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:57 15:50
30	08:25 16:46		07:00 19:55	05:40 20:59	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	08:24 18:00	08:29 16:46	08:57 15:51
31	08:23 16:48				04:42 21:57		05:19 21:36	06:21 20:23		07:26 16:44		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Zviedri - Shadow Receptor: $1,0 \times 1,0$ Azimuth: $3,1^\circ$ Slope: $90,0^\circ$ (196)
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 22:15	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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 17:58	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:14	05:25 21:30	06:27 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 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	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	05:27 21:12	04:36 22:06	04:40 22:12	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	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 16:05	08:04 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 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	06:31 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:39 21:15	06:41 19:56	07:42 18:36	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	05:41 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:12	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	08:47 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	04:31 22:14	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 18:28	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 22:15	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	08:42 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:37	04:30 22:16	04:58 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	04:59 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 17:36	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:55 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 15:59	08:56 15:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:47	06:09 20:38	07:11 19:15	08:13 18:05	08:19 16:58	08:57 15:46
26	08:32 16:37	07:24 17:47	06:11 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	08:16 18:05	08:21 16:55	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	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:03	08:23 16:53	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	08:20 18:01	08:25 16:51	08:57 15:49
29	08:27 16:44		07:02 19:53	05:43 20:57	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	08:57 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	08:24 18:00	08:29 16:46	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:26 18:59		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Atini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (200)
 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		09:48 (9)	08:21			07:17		08:58 (10)	06:54	05:38	04:41
	15:53	69	12:36 (8)	16:50			17:53	29	09:27 (10)	19:59	21:02	21:59
2	08:57		09:49 (9)	08:19			07:14		09:00 (10)	06:52	05:35	04:39
	15:54	69	12:37 (8)	16:53			17:55	25	09:25 (10)	20:01	21:04	22:01
3	08:57		09:49 (9)	08:17		09:13 (10)	07:12		09:02 (10)	06:49	05:33	04:38
	15:55	69	12:37 (8)	16:55	3	09:16 (10)	17:57	20	09:22 (10)	20:03	21:06	22:02
4	08:56		09:48 (9)	08:15		09:06 (10)	07:09		09:06 (10)	06:46	05:31	04:37
	15:57	71	12:37 (8)	16:57	15	09:21 (10)	18:00	12	09:18 (10)	20:05	21:08	22:03
5	08:56		09:49 (9)	08:13		09:04 (10)	07:06			06:44	05:29	04:36
	15:58	71	12:38 (8)	16:59	20	09:24 (10)	18:02			20:07	21:10	22:05
6	08:55		09:49 (9)	08:11		09:02 (10)	07:04			06:41	05:26	04:36
	16:00	70	12:38 (8)	17:02	25	09:27 (10)	18:04			20:09	21:12	22:06
7	08:55		09:49 (9)	08:09		09:00 (10)	07:01			06:38	05:24	04:35
	16:01	72	12:39 (8)	17:04	28	09:28 (10)	18:06			20:11	21:14	22:07
8	08:54		09:50 (9)	08:07		08:59 (10)	06:59			06:36	05:22	04:34
	16:03	71	12:39 (8)	17:06	30	09:29 (10)	18:08			20:14	21:16	22:08
9	08:53		09:50 (9)	08:05		08:58 (10)	06:56			06:33	05:20	04:33
	16:04	71	12:39 (8)	17:08	33	09:31 (10)	18:10			20:16	21:18	22:09
10	08:53		09:50 (9)	08:02		08:57 (10)	06:53			06:30	05:18	04:33
	16:06	72	12:40 (8)	17:11	35	09:32 (10)	18:13			20:18	21:20	22:10
11	08:52		09:51 (9)	08:00		08:56 (10)	06:51			06:28	05:16	04:32
	16:08	71	12:40 (8)	17:13	37	09:33 (10)	18:15			20:20	21:22	22:11
12	08:51		09:50 (9)	07:58		08:56 (10)	06:48			06:25	05:14	04:31
	16:09	71	12:39 (8)	17:15	38	09:34 (10)	18:17			20:22	21:24	22:12
13	08:50		09:51 (9)	07:56		08:55 (10)	06:45			06:23	05:11	04:31
	16:11	71	12:40 (8)	17:17	39	09:34 (10)	18:19			20:24	21:26	22:13
14	08:49		09:51 (9)	07:53		08:55 (10)	06:43			06:20	05:09	04:31
	16:13	71	12:40 (8)	17:20	40	09:35 (10)	18:21			20:26	21:28	22:13
15	08:48		09:51 (9)	07:51		08:54 (10)	06:40			06:17	05:08	04:30
	16:15	71	12:40 (8)	17:22	41	09:35 (10)	18:23			20:28	21:30	22:14
16	08:47		09:52 (9)	07:49		08:54 (10)	06:37			06:15	05:06	04:30
	16:17	68	12:40 (8)	17:24	42	09:36 (10)	18:25			20:30	21:32	22:15
17	08:45		09:52 (9)	07:46		08:53 (10)	06:35			06:12	05:04	04:30
	16:19	68	12:40 (8)	17:26	42	09:35 (10)	18:27			20:32	21:34	22:15
18	08:44		09:53 (9)	07:44		08:53 (10)	06:32			06:10	05:02	04:30
	16:21	67	12:40 (8)	17:29	43	09:36 (10)	18:30			20:35	21:36	22:16
19	08:43		09:53 (9)	07:42		08:53 (10)	06:29			06:07	05:00	04:30
	16:23	66	12:40 (8)	17:31	43	09:36 (10)	18:32			20:37	21:38	22:16
20	08:41		09:53 (9)	07:39		08:53 (10)	06:27			06:05	04:58	04:30
	16:25	65	12:39 (8)	17:33	43	09:36 (10)	18:34			20:39	21:40	22:17
21	08:40		09:55 (9)	07:37		08:53 (10)	06:24			06:02	04:57	04:30
	16:27	61	12:39 (8)	17:35	42	09:35 (10)	18:36			20:41	21:41	22:17
22	08:38		09:55 (9)	07:34		08:53 (10)	06:21			06:00	04:55	04:30
	16:29	59	12:38 (8)	17:38	41	09:34 (10)	18:38			20:43	21:43	22:17
23	08:37		09:56 (9)	07:32		08:54 (10)	06:19			05:57	04:53	04:30
	16:31	56	12:38 (8)	17:40	40	09:34 (10)	18:40			20:45	21:45	22:17
24	08:35		09:57 (9)	07:29		08:54 (10)	06:16			05:55	04:52	04:31
	16:33	53	12:37 (8)	17:42	39	09:33 (10)	18:42			20:47	21:47	22:17
25	08:34		09:58 (9)	07:27		08:55 (10)	06:13			05:52	04:50	04:31
	16:35	47	12:35 (8)	17:44	38	09:33 (10)	18:44			20:49	21:48	22:17
26	08:32		09:59 (9)	07:24		08:55 (10)	06:10			05:50	04:49	04:31
	16:37	42	12:34 (8)	17:46	37	09:32 (10)	18:46			20:51	21:50	22:17
27	08:30		10:00 (9)	07:22		08:56 (10)	06:08			05:47	04:47	04:32
	16:39	36	12:32 (8)	17:49	34	09:30 (10)	18:48			20:53	21:52	22:17
28	08:28		10:02 (9)	07:19		08:57 (10)	06:05			05:45	04:46	04:33
	16:42	26	12:29 (8)	17:51	32	09:29 (10)	18:51			20:55	21:53	22:17
29	08:27		10:05 (9)				07:02			05:42	04:44	04:33
	16:44	8	10:13 (9)				19:53			20:58	21:55	22:17
30	08:25						07:00			05:40	04:43	04:34
	16:46						19:55			21:00	21:56	22:16
31	08:23						06:57				04:42	
	16:48						19:57				21:58	
Potential sun hours	234			266			366		426		508	530
Total, worst case	1782			900			86					
Sun reduction	0,11			0,19			0,40					
Oper. time red.	1,00			1,00			1,00					
Wind dir. red.	1,00			1,00			1,00					
Total reduction	0,11			0,19			0,40					
Total, real	188			173			35					

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

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

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Atini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (200)
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	05:21	06:23	07:23		07:29	08:26 (10)	08:31	09:33 (9)	
	22:16	21:34	20:20	18:59		16:41	35 09:01 (10)	15:50	71 12:22 (8)	
2	04:35	05:23	06:25	07:25		07:31	08:28 (10)	08:33	09:33 (9)	
	22:15	21:32	20:17	18:57		16:39	33 09:01 (10)	15:49	72 12:23 (8)	
3	04:36	05:25	06:27	07:27		07:33	08:29 (10)	08:34	09:33 (9)	
	22:15	21:30	20:15	18:54		16:37	30 08:59 (10)	15:48	71 12:22 (8)	
4	04:37	05:26	06:29	07:29		07:35	08:30 (10)	08:36	09:34 (9)	
	22:14	21:28	20:12	18:51		16:35	27 08:57 (10)	15:47	71 12:23 (8)	
5	04:38	05:28	06:31	07:31		07:38	08:32 (10)	08:37	09:35 (9)	
	22:14	21:26	20:09	18:49		16:32	24 08:56 (10)	15:46	71 12:24 (8)	
6	04:39	05:30	06:33	07:33		07:40	08:34 (10)	08:39	09:35 (9)	
	22:13	21:24	20:07	18:46		16:30	20 08:54 (10)	15:46	71 12:24 (8)	
7	04:40	05:32	06:35	07:35		07:42	08:38 (10)	08:40	09:35 (9)	
	22:12	21:22	20:04	18:43		16:28	13 08:51 (10)	15:45	70 12:24 (8)	
8	04:42	05:34	06:37	07:37		07:44		08:42	09:36 (9)	
	22:11	21:19	20:01	18:41		16:26		15:45	71 12:25 (8)	
9	04:43	05:36	06:39	07:40		09:45 (10)	07:46	08:43	09:37 (9)	
	22:10	21:17	19:59	18:38	4	09:49 (10)	16:24	15:44	69 12:25 (8)	
10	04:44	05:38	06:41	07:42		09:38 (10)	07:48	08:45	09:38 (9)	
	22:09	21:15	19:56	18:35	17	09:55 (10)	16:22	15:44	69 12:26 (8)	
11	04:45	05:40	06:43	07:44		09:35 (10)	07:51	08:46	09:38 (9)	
	22:08	21:12	19:53	18:33	23	09:58 (10)	16:20	15:43	69 12:26 (8)	
12	04:47	05:42	06:45	07:46		09:33 (10)	07:53	08:47	09:39 (9)	
	22:07	21:10	19:51	18:30	26	09:59 (10)	16:18	15:43	69 12:27 (8)	
13	04:48	05:44	06:47	07:48		09:31 (10)	07:55	09:37 (9)	08:48	09:40 (9)
	22:06	21:08	19:48	18:28	30	10:01 (10)	16:16	8 09:45 (9)	15:43	67 12:27 (8)
14	04:50	05:46	06:49	07:50		09:30 (10)	07:57	09:35 (9)	08:49	09:40 (9)
	22:05	21:05	19:45	18:25	33	10:03 (10)	16:14	26 12:02 (8)	15:43	68 12:28 (8)
15	04:51	05:48	06:51	07:52		09:28 (10)	07:59	09:33 (9)	08:50	09:41 (9)
	22:03	21:03	19:43	18:22	35	10:03 (10)	16:13	36 12:05 (8)	15:43	67 12:28 (8)
16	04:53	05:50	06:53	07:54		09:27 (10)	08:01	09:32 (9)	08:51	09:42 (9)
	22:02	21:01	19:40	18:20	37	10:04 (10)	16:11	42 12:07 (8)	15:43	66 12:29 (8)
17	04:54	05:52	06:55	07:56		09:26 (10)	08:03	09:32 (9)	08:52	09:42 (9)
	22:01	20:58	19:37	18:17	38	10:04 (10)	16:09	47 12:09 (8)	15:43	67 12:29 (8)
18	04:56	05:54	06:57	07:58		09:25 (10)	08:06	09:31 (9)	08:53	09:43 (9)
	21:59	20:56	19:34	18:15	40	10:05 (10)	16:07	52 12:10 (8)	15:43	66 12:30 (8)
19	04:57	05:56	06:59	08:01		09:25 (10)	08:08	09:31 (9)	08:54	09:44 (9)
	21:58	20:53	19:32	18:12	41	10:06 (10)	16:06	56 12:13 (8)	15:43	65 12:30 (8)
20	04:59	05:59	07:01	08:03		09:24 (10)	08:10	09:30 (9)	08:55	09:44 (9)
	21:56	20:51	19:29	18:10	42	10:06 (10)	16:04	59 12:13 (8)	15:43	67 12:30 (8)
21	05:01	06:01	07:03	08:05		09:23 (10)	08:12	09:30 (9)	08:55	09:45 (9)
	21:55	20:48	19:26	18:07	43	10:06 (10)	16:03	61 12:14 (8)	15:44	67 12:31 (8)
22	05:02	06:03	07:05	08:07		09:24 (10)	08:14	09:29 (9)	08:56	09:45 (9)
	21:53	20:46	19:24	18:05	42	10:06 (10)	16:01	65 12:15 (8)	15:44	67 12:31 (8)
23	05:04	06:05	07:07	08:09		09:23 (10)	08:16	09:30 (9)	08:56	09:46 (9)
	21:51	20:43	19:21	18:02	43	10:06 (10)	16:00	66 12:17 (8)	15:45	67 12:32 (8)
24	05:06	06:07	07:09	08:11		09:23 (10)	08:18	09:30 (9)	08:57	09:46 (9)
	21:49	20:41	19:18	18:00	42	10:05 (10)	15:58	67 12:17 (8)	15:45	66 12:32 (8)
25	05:08	06:09	07:11	07:14		08:24 (10)	08:20	09:30 (9)	08:57	09:46 (9)
	21:48	20:38	19:15	16:58	42	09:06 (10)	15:57	68 12:18 (8)	15:46	66 12:33 (8)
26	05:09	06:11	07:13	07:16		08:23 (10)	08:22	09:30 (9)	08:57	09:46 (9)
	21:46	20:36	19:13	16:55	42	09:05 (10)	15:56	69 12:18 (8)	15:47	66 12:33 (8)
27	05:11	06:13	07:15	07:18		08:23 (10)	08:24	09:30 (9)	08:58	09:47 (9)
	21:44	20:33	19:10	16:53	41	09:04 (10)	15:54	71 12:19 (8)	15:48	66 12:33 (8)
28	05:13	06:15	07:17	07:20		08:24 (10)	08:25	09:31 (9)	08:58	09:47 (9)
	21:42	20:30	19:07	16:50	40	09:04 (10)	15:53	71 12:20 (8)	15:48	67 12:34 (8)
29	05:15	06:17	07:19	07:22		08:24 (10)	08:27	09:32 (9)	08:58	09:47 (9)
	21:40	20:28	19:05	16:48	39	09:03 (10)	15:52	71 12:21 (8)	15:49	66 12:34 (8)
30	05:17	06:19	07:21	07:24		08:25 (10)	08:29	09:32 (9)	08:58	09:48 (9)
	21:38	20:25	19:02	16:46	37	09:02 (10)	15:51	72 12:22 (8)	15:50	67 12:35 (8)
31	05:19	06:21		07:27		08:26 (10)			08:58	09:48 (9)
	21:36	20:23		16:44	36	09:02 (10)			15:51	68 12:36 (8)
Potential sun hours	530	470	385	323		247		215		
Total, worst case				813		1189		2110		
Sun reduction				0,28		0,08		0,07		
Oper. time red.				1,00		1,00		1,00		
Wind dir. red.				1,00		1,00		1,00		
Total reduction				0,28		0,08		0,07		
Total, real				228		91		158		

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:

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

Calculation: Flickering_Vestas_V162 Shadow receptor: Aki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (228)
 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	06:55 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 16:42	08:31 15:50
2	08:57 15:55	08:19 16:53	07:14 17:55	06:52 20:01	05:36 21:04	04:40 22:01	04:36 22:15	05:23 21:32	06:25 20:17	07:31 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:58	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 15:57	08:15 16:57	07:09 18:00	06:47 20:05	05:31 21:08	04:38 22:03	04:38 22:14	05:27 21:28	06:29 20:12	07:29 18:51	07:35 16:35	08:36 15:48
5	08:56 15:59	08:13 17:00	07:07 18:02	06:44 20:07	05:29 21:10	04:37 22:05	04:39 22:13	05:29 21:26	06:31 20:10	07:31 18:49	07:38 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:27 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
7	08:55 16:02	08:09 17:04	07:01 18:06	06:39 20:12	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:22	06:35 20:04	07:36 18:44	07:42 16:29	08:40 15:46
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 20:02	07:38 18:41	07:44 16:27	08:42 15:45
9	08:53 16:05	08:05 17:09	06:56 18:11	06:33 20:16	05:20 21:18	04:34 22:09	04:43 22:10	05:37 21:17	06:39 19:59	07:40 18:38	07:46 16:24	08:43 15:45
10	08:53 16:06	08:02 17:11	06:53 18:13	06:31 20:18	05:18 21:20	04:33 22:10	04:45 22:09	05:39 21:15	06:41 19:56	07:42 18:36	07:48 16:22	08:45 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	05:41 21:12	06:43 19:53	07:44 18:33	07:51 16:21	08:46 15:44
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 16:19	08:47 15:43
13	08:50 16:12	07:56 17:18	06:46 18:19	06:23 20:24	05:12 21:26	04:32 22:13	04:49 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:17	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	06:18 20:28	05:08 21:30	04:31 22:14	04:52 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	06:38 18:26	06:15 20:30	05:06 21:32	04:31 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 18:28	06:12 20:32	05:04 21:34	04:30 22:15	04:55 22:00	05:53 20:58	06:55 19:37	07:56 18:18	08:03 16:10	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:35	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:35	07:59 18:15	08:06 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	04:58 21:58	05:57 20:53	06:59 19:32	08:01 18:13	08:08 16:06	08:54 15:44
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:59 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:05	08:54 15:44
21	08:40 16:27	07:37 17:36	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 18:08	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	04:31 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:02	08:56 15:45
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:54 21:45	04:31 22:17	05:05 21:51	06:05 20:43	07:07 19:21	08:09 18:03	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 21:47	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:59	08:57 15:46
25	08:34 16:35	07:27 17:45	06:13 18:44	05:52 20:49	04:50 21:48	04:32 22:17	05:08 21:48	06:09 20:38	07:11 19:16	08:13 18:05	08:20 16:58	08:57 15:46
26	08:32 16:38	07:24 17:47	06:11 18:47	05:50 20:51	04:49 21:50	04:32 22:17	05:10 21:46	06:11 20:36	07:13 19:13	08:16 18:05	08:22 16:55	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:49	05:48 20:53	04:48 21:52	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:03	08:23 16:53	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:51	05:45 20:56	04:46 21:53	04:33 22:17	05:14 21:42	06:15 20:31	07:17 19:08	08:20 18:01	08:25 16:51	08:58 15:49
29	08:27 16:44		07:03 19:53	05:43 20:58	04:45 21:55	04:34 22:16	05:15 21:40	06:17 20:28	07:19 19:05	08:22 18:05	08:27 16:48	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	08:24 18:00	08:29 16:46	08:58 15:51
31	08:23 16:49		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	216
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		