

Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: 40940190018001 - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (240) 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	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
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 20:30	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	08:57 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				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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Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

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0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Apseni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (188)  
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	06:31 (3) 21:59	05:30 (4) 22:16	05:40 (4) 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	06:32 (3) 22:00	05:30 (4) 22:15	05:39 (4) 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	06:33 (3) 22:02	05:31 (4) 22:14	05:39 (4) 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	06:35 (3) 22:03	05:32 (4) 22:14	05:39 (4) 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	06:43 (3) 22:03	05:32 (4) 22:13	05:39 (4) 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	05:32 (4) 22:12	05:39 (4) 21:24	06:33 20:07	07:33 18:46	07:40 16:31	08:39 15:46
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	05:33 (4) 22:12	05:38 (4) 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	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	05:34 (4) 22:10	05:38 (4) 21:17	06:44 (3) 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	05:34 (4) 22:09	05:38 (4) 21:15	06:42 (3) 20:56 (3)	07:41 19:56	07:42 18:35	08:44 16:22
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	05:35 (4) 22:08	05:38 (4) 21:12	06:40 (3) 20:58 (3)	07:44 19:53	07:50 18:33	08:46 16:20
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	05:35 (4) 22:07	05:38 (4) 21:10	06:39 (3) 20:58 (3)	07:46 19:51	07:53 18:46	08:47 16:18
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	05:36 (4) 22:06	05:38 (4) 21:08	06:38 (3) 20:59 (3)	07:47 19:48	07:55 18:28	08:48 16:17
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	05:37 (4) 22:04	05:37 (4) 21:05	06:37 (3) 20:59 (3)	07:50 19:45	07:57 18:25	08:49 16:15
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	05:38 (4) 22:03	05:38 (4) 21:03	06:36 (3) 20:59 (3)	07:52 19:43	07:59 18:23	08:50 16:13
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	05:38 (4) 22:02	05:38 (4) 21:01	06:36 (3) 20:59 (3)	07:54 19:40	08:01 18:20	08:51 16:11
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	05:38 (4) 22:00	05:38 (4) 20:58	06:36 (3) 20:58	07:56 19:37	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	04:30 22:16	05:39 (4) 21:59	05:38 (4) 20:56	06:36 (3) 20:57	07:57 19:34	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	04:30 22:16	05:39 (4) 21:57	05:38 (4) 20:53	06:36 (3) 20:59 (3)	08:01 19:32	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	04:30 22:16	05:40 (4) 21:56	05:39 (4) 20:51	06:36 (3) 20:59 (3)	08:03 19:29	08:10 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	04:30 22:17	05:40 (4) 21:54	05:39 (4) 20:48	06:36 (3) 20:58 (3)	08:05 19:26	08:12 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	04:30 22:17	05:40 (4) 21:53	05:39 (4) 20:46	06:37 (3) 20:58 (3)	08:07 19:24	08:14 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	04:31 22:17	05:40 (4) 21:51	05:40 (4) 20:43	06:36 (3) 20:56 (3)	08:09 19:21	08:16 18:03	08:56 16:00
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	05:41 (4) 21:49	05:41 (4) 20:41	06:37 (3) 20:54 (3)	08:11 19:18	08:18 18:00	08:56 15:59
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	05:40 (4) 21:47	05:43 (4) 20:38	06:39 (3) 20:52 (3)	08:19 19:15	08:19 16:58	08:57 15:57
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	05:41 (4) 21:46	05:45 (4) 20:36	06:42 (3) 20:49 (3)	08:21 19:13	08:21 16:55	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	04:32 22:17	05:40 (4) 21:44	05:46 (4) 20:33	06:43 (3) 20:56 (3)	08:23 19:10	08:23 16:58	08:57 15:55
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	05:40 (4) 21:42	05:48 (4) 20:30	06:45 (3) 20:30	08:25 19:07	08:25 16:51	08:57 15:53
29	08:27 16:44	07:02 17:53	05:43 19:02	05:43 20:57	04:45 21:55	04:34 22:16	05:40 (4) 21:40	05:50 (4) 20:28	06:17 20:19	08:27 19:05	08:27 16:48	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	05:40 (4) 21:38	05:52 (4) 20:25	06:19 20:23	08:29 19:02	08:29 16:46	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	05:40 (4) 21:36	05:52 (4) 20:23	06:21 20:23	08:31 19:04	08:31 16:44	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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Atputas - Shadow Receptor:  $1,0 \times 1,0$  Azimuth:  $3,1^\circ$  Slope:  $90,0^\circ$  (230)  
 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 16:20	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 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
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	07:17 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 22:15	05:23 21:34 (3)	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 21:34 (3)	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 21:34 (3)	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 21:33 (3)	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	21:09 (3) 21:26 (3)	04:40 22:12	05:30 21:33 (3)	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	21:09 (3) 21:27 (3)	04:41 22:11	05:23 21:32 (3)	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	21:09 (3) 21:28 (3)	04:42 22:11	05:34 21:31 (3)	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	21:09 (3) 21:29 (3)	04:43 22:10	05:36 21:30 (3)	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	21:09 (3) 21:30 (3)	04:44 22:09	05:38 21:29 (3)	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 21:28 (3)	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 21:28 (3)	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 21:21 (3)	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 21:25 (3)	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	21:10 (3) 21:31 (3)	04:51 22:03	05:48 21:25 (3)	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	21:10 (3) 21:32 (3)	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	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	05:41 21:00	04:42 21:57	04:42 21:58	04:33 22:17	21:11 (3) 21:36 (3)	05:19 21:36	06:21 20:22	07:26 19:02	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Balož i - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (192)  
 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	07:31 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	08:39 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 18:00	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	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		



## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	20:19 (6) 22:00
3	08:56 15:56	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	20:01 (6) 22:02
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
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
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	19:30 (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	19:23 (3) 19:38 (3)	05:22 21:16
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	19:20 (3) 19:40 (3)	05:20 21:18
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	19:19 (3) 19:42 (3)	05:18 21:20
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	19:16 (3) 19:43 (3)	05:16 21:22
12	08:50 16:10	07:58 17:15	06:48 18:17	06:25 20:22	19:16 (3) 19:44 (3)	05:14 21:24
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	19:14 (3) 19:44 (3)	05:12 21:26
14	08:48 16:13	07:53 17:20	06:43 18:21	06:20 20:26	19:13 (3) 19:45 (3)	05:10 21:28
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	19:12 (3) 19:45 (3)	05:08 21:30
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	19:12 (3) 19:46 (3)	05:06 21:32
17	08:45 16:19	07:46 17:26	06:35 18:27	06:12 20:32	19:11 (3) 19:45 (3)	05:04 21:34
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	19:11 (3) 19:46 (3)	05:02 21:35
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	19:10 (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	19:10 (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	19:10 (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	19:10 (3) 20:12 (6)	04:55 21:43
23	08:36 16:31	07:32 17:40	06:18 18:40	05:57 20:45	19:11 (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	19:11 (3) 20:15 (6)	04:52 21:46
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	19:12 (3) 20:16 (6)	04:50 21:48
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	19:13 (3) 20:16 (6)	04:49 21:50
27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	19:13 (3) 20:15 (6)	04:47 21:51
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	19:14 (3) 20:15 (6)	04:46 21:53
29	08:26 16:44		07:02 19:52	05:42 20:57	19:16 (3) 20:14 (6)	04:44 21:54
30	08:25 16:46		07:00 19:55	05:40 20:59	19:18 (3) 20:13 (6)	04:43 21:56
31	08:23 16:48		06:57 19:57		04:42 21:57	20:59 (4) 21:16 (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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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		20:09 (6)			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		20:07 (6)			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)			06:45			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)			06:47			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)			06:49			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)			06:51			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)			06:53			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)			06:55			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)			06:57			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)			06:59			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)			07:01			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)			07:03			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)			07:05			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)			07:07			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)			07:09			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)			07:11			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)			07:13			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)			07:15			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)			07:17			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)			07:19			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)			07:21			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)	Last time (hh:mm) with flicker	(WTG causing flicker last time)



Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Buži - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (226)  
 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	22:00	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	07:37	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	15:44
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
	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	04:32	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	04:51	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	07:58	08:05	08:53
	16:21	17:29	18:30	20:35	21:36	22:16	21:59	20:56	19:34	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	16:01	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	08:56
	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
	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	04:48	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	05:13	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	08:57
	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
	16:48		19:57		21:58		21:36	20:23		16:44		15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Berzes - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (170)  
 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
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 18:15	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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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) 19:28 (13)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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.

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

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Dzeni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (171) 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	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
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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
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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 18:43		08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Dzilnas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (165)  
 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
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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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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
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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
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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 16:43		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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Dzintari - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (209)  
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
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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
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	05:09 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 22:16	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Dzirnauki - Shadow Receptor:  $1,0 \times 1,0$  Azimuth:  $3,1^\circ$  Slope:  $90,0^\circ$  (224)  
 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 22:00	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	07:38 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 15:45
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 19:35	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 15:44
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	08:13 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	05:48 20:53	04:48 21:51	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:03	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 20:30	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 20:58	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	08:57 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	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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
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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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
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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 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
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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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Graš ini - 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	22:15 04:36	21:33 (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	04:37 22:14	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	04:37 22:14	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	21:28 (4) 04:38	21:20 (4) 05:28	19:44 (3) 06:31	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	21:32 (4) 05:30	19:56 (3) 20:09	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	20:26 (6) 19:39 (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	05:22 21:16	19:35 (3) 04:34	21:25 (4) 04:42	21:30 (4) 05:34	20:27 (6) 19:38 (3)	07:35 18:41	07:42 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) 22:08	21:27 (4) 04:43	21:37 (4) 05:36	20:29 (6) 19:37 (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 20:18	05:18 21:20	20:16 (6) 04:33	21:27 (4) 04:44	21:44 (4) 05:38	20:30 (6) 19:36 (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	05:16 21:22	20:17 (6) 04:32	21:28 (4) 04:46	21:45 (4) 05:40	20:31 (6) 19:35 (3)	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	20:18 (6) 04:32	21:29 (4) 04:47	21:50 (4) 05:42	20:32 (6) 19:34 (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	05:12 21:26	20:19 (6) 04:31	21:24 (4) 04:48	21:51 (4) 05:44	20:33 (6) 19:32 (3)	07:47 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	19:36 (3) 04:31	21:25 (4) 04:50	21:52 (4) 05:46	20:34 (6) 19:33 (3)	07:48 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	20:17 (6) 04:31	21:26 (4) 04:51	21:53 (4) 05:48	20:35 (6) 19:31 (3)	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	19:33 (3) 04:30	21:27 (4) 04:53	21:54 (4) 05:50	20:36 (6) 19:31 (3)	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	19:34 (3) 04:30	21:28 (4) 04:54	21:55 (4) 05:52	20:37 (6) 19:32 (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	19:35 (3) 04:30	21:29 (4) 04:56	21:56 (4) 05:54	20:38 (6) 19:33 (3)	07:57 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	20:18 (6) 04:30	21:30 (4) 04:57	21:57 (4) 05:56	20:39 (6) 19:31 (3)	07:58 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	19:37 (3) 04:30	21:31 (4) 04:59	21:58 (4) 05:58	20:40 (6) 19:30 (3)	07:59 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	20:19 (6) 04:30	21:32 (4) 05:01	21:59 (4) 06:01	20:41 (6) 19:30 (3)	08:00 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	19:38 (3) 04:30	21:33 (4) 05:02	21:59 (4) 06:03	20:42 (6) 19:30 (3)	08:01 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	20:20 (6) 04:31	21:34 (4) 05:04	21:59 (4) 06:05	20:43 (6) 19:30 (3)	08:02 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	19:39 (3) 04:30	21:34 (4) 05:06	21:59 (4) 06:07	20:44 (6) 19:31 (3)	08:03 18:11	08:17 16:00	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	20:21 (6) 04:31	21:34 (4) 05:08	21:59 (4) 06:09	20:45 (6) 19:32 (3)	08:04 18:08	08:19 16:00	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	20:22 (6) 04:32	21:34 (4) 05:10	21:59 (4) 06:11	20:46 (6) 19:33 (3)	08:05 18:13	08:21 16:00	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	20:23 (6) 04:33	21:34 (4) 05:11	21:59 (4) 06:13	20:47 (6) 19:34 (3)	08:06 18:15	08:23 16:00	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	20:24 (6) 04:33	21:34 (4) 05:13	21:59 (4) 06:15	20:48 (6) 19:35 (3)	08:07 18:15	08:25 16:00	08:57 15:49
29	08:26 16:44	07:02 17:52	05:42 19:52	04:44 20:57	04:44 21:54	20:25 (6) 04:33	21:34 (4) 05:15	21:59 (4) 06:17	20:49 (6) 19:37 (3)	08:08 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 20:59	04:43 21:56	20:26 (6) 04:34	21:34 (4) 05:17	21:59 (4) 06:19	20:50 (6) 19:41 (3)	08:09 18:15	08:29 16:00	08:57 15:51
31	08:23 16:48	06:57 17:57	05:07 19:57	04:42 21:57	04:42 21:57	20:27 (6) 04:34	21:34 (4) 05:19	21:59 (4) 06:21	20:51 (6) 19:48 (3)	08:10 18:16	08:30 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	07:25 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	08:56 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
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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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
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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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	07:31 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
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
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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
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11	08:51 16:08	08:00 17:13	06:50 18:14	06:28 20:19	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
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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 21:31	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	06:09 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 22:16	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	04:30 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	08:56 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 19:12	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		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 18:10	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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	05:31 (3) 05:52 (3)	04:35 22:15	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	05:31 (3) 05:52 (3)	04:36 22:15	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	05:32 (3) 05:53 (3)	04:37 22:14	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	05:33 (3) 05:53 (3)	04:38 22:14	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	05:33 (3) 05:52 (3)	04:39 22:13	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	05:33 (3) 05:52 (3)	04:40 22:12	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	05:34 (3) 05:52 (3)	04:41 22:12	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	05:34 (3) 05:52 (3)	04:42 22:11	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	05:35 (3) 05:52 (3)	04:43 22:10	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	05:35 (3) 05:52 (3)	04:44 22:09	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	05:36 (3) 05:52 (3)	04:46 22:08	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	05:36 (3) 05:51 (3)	04:47 22:07	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	05:37 (3) 05:51 (3)	04:48 22:05	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	04:31 22:13	05:37 (3) 05:51 (3)	04:50 22:04	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	04:31 22:14	05:38 (3) 05:52 (3)	04:51 22:03	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	04:30 22:14	05:37 (3) 05:52 (3)	04:53 22:02	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	04:30 22:15	05:38 (3) 05:51 (3)	04:54 22:00	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	04:30 22:15	05:38 (3) 05:51 (3)	04:56 21:59	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	04:30 22:16	05:40 (3) 05:52 (3)	04:58 21:57	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	04:30 22:16	05:40 (3) 05:52 (3)	04:59 21:56	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	04:30 22:17	05:40 (3) 05:52 (3)	05:01 21:54	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	04:30 22:17	05:40 (3) 05:52 (3)	05:03 21:53	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	04:31 22:17	05:40 (3) 05:52 (3)	05:04 21:51	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	04:31 22:17	05:40 (3) 05:53 (3)	05:06 21:49	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	04:31 22:17	05:40 (3) 05:52 (3)	05:08 21:47	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	04:32 22:17	05:40 (3) 05:54 (3)	05:10 21:46	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	04:32 22:17	05:40 (3) 05:54 (3)	05:12 21:44	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	04:33 22:17	05:41 (3) 05:54 (3)	05:13 21:42	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	04:34 22:16	05:40 (3) 05:54 (3)	05:15 21:40	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	04:34 22:16	05:40 (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	05:30 (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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Jaunpenki - Shadow Receptor:  $1,0 \times 1,0$  Azimuth:  $3,1^\circ$  Slope:  $90,0^\circ$  (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
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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	04:31 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
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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 20:58	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	08:57 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	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 21:34	05:37 (3) 20:20	05:21 18:59	07:23 16:41	07:29 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	05:31 (3) 22:15	04:36 21:32	05:36 (3) 20:17	05:23 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	05:32 (3) 22:14	04:37 21:30	05:36 (3) 20:15	05:25 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	04:38 22:03	05:32 (3) 22:14	04:38 21:28	05:37 (3) 20:12	05:27 18:51	07:29 16:35	08:36 15:47
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 21:26	05:37 (3) 20:09	05:29 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	05:26 21:12	04:36 22:06	05:31 (3) 22:12	04:40 21:24	05:37 (3) 20:07	05:31 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	05:32 (3) 22:12	04:41 21:21	05:38 (3) 20:04	05:33 18:43	07:35 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	05:32 (3) 22:11	04:42 21:19	05:38 (3) 20:01	05:35 18:41	07:37 16:26	08:42 15:45
9	08:53 16:05	08:04 17:09	06:58 18:10	06:33 20:16	05:20 21:18	04:34 22:09	05:32 (3) 22:10	04:43 21:17	05:38 (3) 19:59	05:37 18:38	07:40 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	05:32 (3) 22:09	04:44 21:15	05:38 (3) 19:56	05:39 18:35	07:42 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	05:32 (3) 22:08	04:46 21:12	05:39 (3) 19:53	05:41 18:33	07:44 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	05:32 (3) 22:07	04:47 21:10	05:40 (3) 19:51	05:43 18:30	07:46 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	05:32 (3) 22:05	04:48 21:08	05:40 (3) 19:48	05:45 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	05:33 (3) 22:04	04:50 21:05	05:40 (3) 19:45	05:47 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	05:33 (3) 22:03	04:51 21:03	05:41 (3) 19:42	05:49 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	05:33 (3) 22:02	04:53 21:00	05:41 (3) 19:40	05:51 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	05:33 (3) 22:00	04:54 20:58	05:42 (3) 19:37	05:53 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	05:33 (3) 21:59	04:56 20:56	05:42 (3) 19:34	05:55 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	05:33 (3) 21:57	04:58 20:53	05:43 (3) 19:32	05:57 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	05:34 (3) 21:56	04:59 20:51	05:44 (3) 19:29	05:59 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	05:34 (3) 21:54	05:01 20:48	05:44 (3) 19:26	06:01 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	05:34 (3) 21:53	05:03 20:46	05:46 (3) 19:24	06:03 18:05	08:14 16:01	08:55 15:44
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:53 21:45	04:31 22:17	05:34 (3) 21:51	05:04 20:43	05:48 (3) 19:21	06:05 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	05:35 (3) 21:49	05:06 20:41	05:49 (3) 19:18	06:07 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	05:35 (3) 21:47	05:08 20:38	05:52 (3) 19:15	06:09 18:58	07:13 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	05:36 (3) 21:46	05:10 20:36	06:00 (3) 19:13	06:11 18:55	07:16 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	05:35 (3) 21:44	05:12 20:33	06:13 19:10	06:15 18:53	07:18 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	05:36 (3) 21:42	05:13 20:30	06:15 19:07	07:17 18:51	07:20 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	05:36 (3) 21:40	05:15 20:28	06:17 19:05	07:19 18:48	07:22 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	05:36 (3) 21:38	05:17 20:25	07:21 19:02	07:24 18:46	08:29 15:51	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:58	04:31 22:16	05:19 21:36	05:19 20:23	06:21 19:02	07:26 18:44		08:57 15:52
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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	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	21:22	20:04	18:43	16:29	15:45
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	04:44	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	18:36	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	04:54	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	08:06	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	04:58	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	18:13	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	15:53	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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) 21:34	04:41 21:59	04:35 22:16	05:21 20:20	06:23 18:59	07:23 16:41	07:29 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	07:25 16:39	07:31 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	07:33 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	07:35 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	04:37 22:13	04:39 22:13	05:29 21:26	06:31 18:49	07:31 16:33	07:37 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	04:36 22:12	04:40 22:12	05:31 21:24	06:33 18:46	07:33 16:31	07:40 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	04:41 22:12	05:33 21:21	06:35 18:43	07:35 16:28	07:42 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	04:42 22:11	05:35 21:19	06:37 18:41	07:37 16:26	07:44 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	04:43 22:10	05:37 21:17	06:39 18:38	07:40 16:24	07:46 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	04:46 22:08	05:41 21:12	06:42 (3) 18:33	07:45 16:20	07:50 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	04:47 22:07	05:43 21:10	06:44 (3) 18:30	07:46 16:18	07:53 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	04:49 22:06	05:45 21:08	06:45 (3) 18:28	07:47 16:17	07:55 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	04:50 22:04	05:47 21:05	06:46 (3) 18:25	07:50 16:15	07:57 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	05:15 (6) 22:03	05:49 21:03	06:46 (3) 18:23	07:52 16:13	07:59 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	05:16 (6) 22:02	05:51 21:01	06:46 (3) 18:20	07:54 16:11	08:01 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	05:17 (6) 22:00	05:53 20:58	06:47 (3) 18:17	07:56 16:09	08:03 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	05:09 (6) 21:59	05:09 (6) 21:59	05:55 20:56	06:48 (3) 18:15	07:58 16:08	08:05 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	05:18 (6) 21:57	05:18 (6) 21:57	05:57 20:53	06:46 (3) 18:12	08:01 16:06	08:07 15:43
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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	05:09 (6) 21:54	06:01 20:48	06:32 (3) 18:07	07:03 16:03	08:05 15:44
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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	05:09 (6) 21:51	06:05 20:43	06:35 (3) 18:03	07:07 16:00	08:09 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	05:10 (6) 21:49	06:07 20:41	06:40 (3) 18:01	07:09 16:00	08:11 15:45
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	05:11 (6) 21:47	06:09 20:38	07:11 18:00	07:13 16:00	08:20 15:46
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31	08:23 16:48	07:13 17:57	05:57 18:57	04:42 21:58	06:38 (3) 21:58	04:42 22:16	05:19 21:36	05:19 21:36	06:21 20:23	07:27 18:00	07:27 16:00	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)
	Minutes with flicker		



Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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
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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 22:07	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
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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
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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	08:25 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 18:05	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 18:43		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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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
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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 18:15	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 19:12	08:15 18:15	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 18:10	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 18:15	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Kalnamuiž as 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	07:31 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	08:39 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 18:00	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	07:26 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												
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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Kaspri - 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	08:21	07:17		06:54	25	07:39 (6)	05:38	04:41	05:29 (5)
	15:53	16:51	17:53		19:59		08:04 (6)	21:02	21:59	05:50 (5)
2	08:57	08:19	07:14		06:52		07:36 (6)	05:36	04:40	05:29 (5)
	15:54	16:53	17:55		20:01	29	08:05 (6)	21:04	22:00	05:50 (5)
3	08:57	08:17	07:12		06:49		07:14 (4)	05:33	04:39	05:29 (5)
	15:56	16:55	17:58		20:03	39	08:06 (6)	21:06	22:02	05:50 (5)
4	08:56	08:15	07:09		06:46		07:12 (4)	05:31	04:38	05:30 (5)
	15:57	16:57	18:00		20:05	47	08:08 (6)	21:08	22:03	05:51 (5)
5	08:56	08:13	07:06		06:44		07:09 (4)	05:29	04:37	05:30 (5)
	15:58	17:00	18:02		20:07	53	08:08 (6)	21:10	22:04	05:51 (5)
6	08:55	08:11	07:04		06:41		07:07 (4)	05:26	04:36	05:30 (5)
	16:00	17:02	18:04	11	07:41 (3)	57	08:08 (6)	21:12	22:06	05:50 (5)
7	08:55	08:09	07:01		06:38		07:06 (4)	05:24	04:35	05:31 (5)
	16:01	17:04	18:06	15	07:42 (3)	61	08:09 (6)	21:14	22:07	05:51 (5)
8	08:54	08:07	06:59		07:24 (3)		07:05 (4)	05:22	04:34	05:31 (5)
	16:03	17:06	18:08	19	07:43 (3)	63	08:09 (6)	21:16	22:08	05:50 (5)
9	08:53	08:05	06:56		07:24 (3)		07:05 (4)	05:20	04:33	05:31 (5)
	16:05	17:09	18:10	20	07:44 (3)	64	08:10 (6)	21:18	22:09	05:50 (5)
10	08:52	08:02	06:53		07:23 (3)		07:04 (4)	05:18	04:33	05:32 (5)
	16:06	17:11	18:13	22	07:45 (3)	66	08:10 (6)	21:20	22:10	05:50 (5)
11	08:52	08:00	06:51		07:22 (3)		07:03 (4)	05:16	04:32	05:33 (5)
	16:08	17:13	18:15	22	07:44 (3)	66	08:09 (6)	21:22	22:11	05:51 (5)
12	08:51	07:58	06:48		07:22 (3)		07:04 (4)	05:14	04:32	05:33 (5)
	16:10	17:15	18:17	23	07:45 (3)	66	08:10 (6)	21:24	22:12	05:50 (5)
13	08:50	07:56	06:45		07:21 (3)		07:04 (4)	05:12	04:31	05:34 (5)
	16:11	17:18	18:19	23	07:44 (3)	65	08:09 (6)	21:26	22:12	05:50 (5)
14	08:49	07:53	06:43		07:21 (3)		07:05 (4)	05:10	04:31	05:34 (5)
	16:13	17:20	18:21	23	07:44 (3)	63	08:09 (6)	21:28	22:13	05:50 (5)
15	08:48	07:51	06:40		07:21 (3)		07:05 (4)	05:08	04:31	05:35 (5)
	16:15	17:22	18:23	22	07:43 (3)	60	08:08 (6)	21:30	2	05:40 (5)
16	08:46	07:49	06:37		07:22 (3)		07:07 (4)	05:06	05:37 (5)	04:30
	16:17	17:24	18:25	20	07:42 (3)	57	08:08 (6)	21:32	7	05:44 (5)
17	08:45	07:46	06:35		07:23 (3)		07:08 (4)	05:04	05:35 (5)	04:30
	16:19	17:27	18:27	17	07:40 (3)	52	08:07 (6)	21:34	10	05:45 (5)
18	08:44	07:44	06:32		07:24 (3)		07:25 (6)	05:02	05:33 (5)	04:30
	16:21	17:29	18:30	14	07:38 (3)	41	08:06 (6)	21:36	13	05:46 (5)
19	08:43	07:42	06:29		07:27 (3)		07:25 (6)	05:00	05:32 (5)	04:30
	16:23	17:31	18:32	9	07:36 (3)	40	08:05 (6)	21:38	15	05:47 (5)
20	08:41	07:39	06:27		06:05		07:26 (6)	04:59	05:30 (5)	04:30
	16:25	17:33	18:34		20:39	38	08:04 (6)	21:39	18	05:48 (5)
21	08:40	07:37	06:24		06:02		07:27 (6)	04:57	05:29 (5)	04:30
	16:27	17:35	18:36		20:41	37	08:04 (6)	21:41	20	05:49 (5)
22	08:38	07:34	06:21		06:00		07:27 (6)	04:55	05:28 (5)	04:30
	16:29	17:38	18:38		20:43	35	08:02 (6)	21:43	21	05:49 (5)
23	08:37	07:32	06:19		05:57		07:28 (6)	04:53	05:28 (5)	04:31
	16:31	17:40	18:40		20:45	33	08:01 (6)	21:45	22	05:50 (5)
24	08:35	07:29	06:16		05:55		07:29 (6)	04:52	05:28 (5)	04:31
	16:33	17:42	18:42		20:47	30	07:59 (6)	21:46	21	05:49 (5)
25	08:33	07:27	06:13		05:52		07:30 (6)	04:50	05:28 (5)	04:31
	16:35	17:44	18:44		20:49	27	07:57 (6)	21:48	22	05:50 (5)
26	08:32	07:24	06:11		05:50		07:32 (6)	04:49	05:28 (5)	04:32
	16:37	17:47	18:46		20:51	23	07:55 (6)	21:50	22	05:50 (5)
27	08:30	07:22	06:08		05:47		07:35 (6)	04:47	05:28 (5)	04:32
	16:40	17:49	18:48		20:53	18	07:53 (6)	21:51	23	05:51 (5)
28	08:28	07:19	06:05		05:45		07:37 (6)	04:46	05:28 (5)	04:33
	16:42	17:51	18:51		20:55	11	07:48 (6)	21:53	22	05:50 (5)
29	08:27		07:02		05:43			04:45	05:28 (5)	04:33
	16:44		19:53		20:57			21:55	22	05:50 (5)
30	08:25		07:00		05:40			04:43	05:28 (5)	04:34
	16:46		19:55	11	07:57 (6)			21:56	22	05:50 (5)
31	08:23		06:57		07:41 (6)			04:42	05:28 (5)	
	16:48		19:57	20	08:01 (6)			21:58	23	05:51 (5)
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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Kaspari - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (205)  
 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	07:44 (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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	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	07:35	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	15:44
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
	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	04:32	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	19:34	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	16:01	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	08:56
	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
	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	04:48	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	05:13	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
	16:48		19:57		21:58		21:36	20:23		16:44		15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Klavas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (181°)  
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	07:31 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
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
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31	08:23 16:48				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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	07:31 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
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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 18:15	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
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
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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
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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 22:17	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
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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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Laucini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (191)  
 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
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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\_kumulativa\_ietekme

Licensed user:  
SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
07.04.2025 14:12/4.1.254

SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Lejieši 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	08:21 16:50	07:16 17:53	06:54 17:59	05:38 21:01	04:41 21:59	04:35 22:15	05:21 21:34	06:23 20:20	19:48 (5) 19:49 (5)	07:23 18:59	18:14 (4) 18:28 (4)	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	18:15 (4) 18:26 (4)	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	18:16 (4) 18:23 (4)	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	18:17 (4) 18:21 (4)	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 20:07		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	06:36 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 22:12	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	04:53 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		07:55 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	19:52 (5) 20:01 (5)	07:01 19:29		08:02 16:04	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	04:57 21:41	04:30 22:16	05:01 21:54	06:00 20:48	19:50 (5) 20:02 (5)	07:03 19:26		08:05 16:03	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	19:49 (5) 20:04 (5)	07:05 19:23		08:07 18:21 (4)	08:07 18:05	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	19:48 (5) 20:04 (5)	07:07 19:21	18:21 (4)	08:09 18:02	08:15 18:02	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	19:47 (5) 20:05 (5)	07:09 19:18	18:19 (4) 18:33 (4)	08:11 18:00	08:17 18:00	08:57 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	19:46 (5) 20:05 (5)	07:11 19:15	18:17 (4) 18:34 (4)	08:13 16:57	08:19 16:57	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	04:49 21:50	04:32 22:17	05:09 21:46	06:11 20:35	19:46 (5) 20:05 (5)	07:13 19:13	18:16 (4) 18:35 (4)	08:15 16:55	08:21 16:55	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	19:46 (5) 20:02 (5)	07:15 19:10	18:15 (4) 18:35 (4)	08:18 16:53	08:23 16:54	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	19:46 (5) 20:00 (5)	07:17 19:07	18:14 (4) 18:35 (4)	08:19 16:50	08:25 16:53	08:57 15:48
29	08:26 16:44		07:02 19:52	05:42 20:54	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)	08:22 16:48	08:27 16:48	08:57 15:49
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	19:46 (5) 19:54 (5)	07:21 19:02	18:14 (4) 18:31 (4)	08:24 16:46	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	19:47 (5) 19:51 (5)			08:26 16:43	08:31 16:43	08:57 15:51
Potential sun hours	235	266	366	426	508	529	530	470	385		323		247	216
Total, worst case				164					161		140		36	
Sun reduction			172	0,40	0,47				0,51		0,46		0,28	
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			0,40	0,47					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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Licupes - Shadow Receptor:  $1,0 \times 1,0$  Azimuth:  $3,1^\circ$  Slope:  $90,0^\circ$  (217)  
 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	08:21	15:59 (5)	07:17	06:54	19:01 (13)
	15:53	16:50	17	16:16 (5)	17:53	19:13 (13)
2	08:57	08:19	15:58 (5)	07:14	06:51	19:04 (13)
	15:54	16:53	19	16:17 (5)	17:55	19:11 (13)
3	08:57	08:17	15:58 (5)	07:11	06:49	05:33
	15:55	16:55	20	16:18 (5)	17:57	21:06
4	08:56	08:15	15:59 (5)	07:09	06:46	05:31
	15:57	16:57	19	16:18 (5)	17:59	21:08
5	08:56	08:13	15:59 (5)	07:06	06:43	05:28
	15:58	16:59	19	16:18 (5)	18:02	21:10
6	08:55	08:11	16:00 (5)	07:04	06:41	05:26
	16:00	17:01	18	16:18 (5)	18:04	21:12
7	08:55	08:09	16:00 (5)	07:01	06:38	05:24
	16:01	17:04	17	16:17 (5)	18:06	21:14
8	08:54	08:07	16:01 (5)	06:58	06:36	05:22
	16:03	17:06	16	16:17 (5)	18:08	21:16
9	08:53	08:04	16:03 (5)	06:56	06:33	05:20
	16:04	17:08	13	16:16 (5)	18:10	21:18
10	08:52	08:02	16:04 (5)	06:53	06:30	05:18
	16:06	17:11	9	16:13 (5)	18:12	21:20
11	08:52	08:00	06:50	06:50	06:28	05:15
	16:08	17:13	18:15	20:20	21:22	22:11
12	08:51	07:58	06:48	06:25	05:13	04:31
	16:09	17:15	18:17	20:22	21:24	22:12
13	08:50	07:55	06:45	06:22	05:11	04:31
	16:11	17:17	18:19	20:24	21:26	22:12
14	08:49	07:53	06:43	06:20	05:09	04:31
	16:13	17:20	18:21	20:26	21:28	22:13
15	08:47	07:51	06:40	06:17	05:07	04:30
	16:15	17:22	18:23	20:28	21:30	22:14
16	08:46	07:49	06:37	06:15	19:58 (9)	05:06
	16:17	17:24	18:25	20:30	20:01 (9)	21:32
17	08:45	07:46	06:34	06:12	19:55 (9)	05:04
	16:19	17:26	18:27	20:32	7	20:02 (9)
18	08:44	07:44	06:32	06:09	19:54 (9)	05:02
	16:21	17:29	18:29	20:34	10	20:04 (9)
19	08:42	07:41	06:29	06:07	19:53 (9)	05:00
	16:23	17:31	18:32	20:36	13	20:06 (9)
20	08:41	07:39	06:26	06:04	19:52 (9)	04:58
	16:25	17:33	18:34	20:39	16	20:08 (9)
21	08:40	07:37	06:24	06:02	19:51 (9)	04:56
	16:27	17:35	18:36	20:41	19	20:10 (9)
22	08:38	07:34	06:21	18:06 (13)	05:59	19:51 (9)
	16:29	17:37	18:38	3	18:09 (13)	20:43
23	08:37	07:32	06:18	18:04 (13)	05:57	19:51 (9)
	16:31	17:40	18:40	8	18:12 (13)	20:45
24	08:35	07:29	06:16	18:02 (13)	05:54	19:51 (9)
	16:33	17:42	18:42	12	18:14 (13)	20:47
25	08:33	07:27	06:13	18:01 (13)	05:52	19:51 (9)
	16:35	17:44	18:44	15	18:16 (13)	20:49
26	08:32	07:24	06:10	18:00 (13)	05:50	19:52 (9)
	16:37	17:46	18:46	17	18:17 (13)	20:51
27	08:30	07:22	06:08	18:00 (13)	05:47	19:53 (9)
	16:39	1	16:03 (5)	17:49	18:48	19
28	08:28	16:01 (5)	07:19	06:05	17:59 (13)	05:45
	16:41	4	16:05 (5)	17:51	18:50	19
29	08:26	16:00 (5)	07:02	18:59 (13)	05:42	19:57 (9)
	16:44	8	16:08 (5)	19:52	18	19:17 (13)
30	08:25	15:59 (5)	07:00	19:00 (13)	05:40	20:59
	16:46	11	16:10 (5)	19:55	17	19:17 (13)
31	08:23	15:59 (5)	06:57	19:00 (13)	05:42	20:59
	16:48	14	16:13 (5)	19:57	16	19:16 (13)
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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

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0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	18:48 (13) 19:08 (13)	07:54 18:20
17	04:54 22:00	05:52 20:58	19:59 (9) 20:15 (9)	06:55 19:37	18:48 (13) 19:06 (13)	07:56 18:17
18	04:56 21:59	05:54 20:56	19:58 (9) 20:16 (9)	06:57 19:34	18:48 (13) 19:04 (13)	07:58 18:15
19	04:57 21:57	05:56 20:53	19:57 (9) 20:16 (9)	06:59 19:32	18:49 (13) 19:01 (13)	08:00 18:12
20	04:59 21:56	05:58 20:51	19:56 (9) 20:15 (9)	07:01 19:29	18:50 (13) 18:58 (13)	08:03 18:10
21	05:01 21:54	06:00 20:48	19:56 (9) 20:15 (9)	07:03 19:26	18:51 (13) 18:56 (13)	08:05 18:07
22	05:02 21:53	06:02 20:46	19:56 (9) 20:14 (9)	07:05 19:23	18:07 18:05	08:07 18:03
23	05:04 21:51	06:04 20:43	19:56 (9) 20:12 (9)	07:07 19:21	08:09 18:02	08:09 16:00
24	05:06 21:49	06:06 20:41	19:56 (9) 20:09 (9)	07:09 19:18	08:11 18:00	08:18 15:58
25	05:08 21:47	06:08 20:38	19:57 (9) 20:07 (9)	07:11 19:15	07:13 16:57	08:19 15:57
26	05:09 21:46	06:11 20:35	19:58 (9) 20:05 (9)	07:13 19:13	07:15 16:55	08:21 15:55
27	05:11 21:44	06:13 20:33	20:00 (9) 20:02 (9)	07:15 19:10	07:18 16:53	08:23 15:54
28	05:13 21:42	06:15 20:30	07:17 19:07	07:20 16:50	08:25 15:53	15:53 15:48
29	05:15 21:40	06:17 20:28	07:19 19:04	07:22 16:48	08:27 15:52	08:57 15:49
30	05:17 21:38	06:19 20:25	07:21 19:02	07:24 16:46	08:29 15:51	08:57 15:50
31	05:19 21:36	06:21 20:22		07:26 16:43	15:37 (5) 15:40 (5)	08:57 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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	07:25 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 22:11	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 18:05	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 21:45	06:10 20:35	07:13 19:12	08:15 18:05	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 18:05	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	04:32 22:16	05:13 21:42	06:14 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	06:16 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 16:43	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme

Shadow receptor: Mazgi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (222)

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	08:58	08:21	07:17							17:19 (1)	06:54		05:38			04:41		21:13 (5)
	15:53	16:50	17:53				5			17:24 (1)	19:59		21:02			22:00	8	21:21 (5)
2	08:57	08:19	07:14							17:18 (1)	06:52		19:21 (2)			04:40		21:12 (5)
	15:54	16:53	17:55				9			17:27 (1)	20:01	6	19:27 (2)			22:01	10	21:22 (5)
3	08:57	08:17	07:12							17:16 (1)	06:49		19:16 (2)			04:38		21:11 (5)
	15:56	16:55	17:58				13			17:29 (1)	20:03	15	19:31 (2)			22:02	12	21:23 (5)
4	08:57	08:15	07:09							17:15 (1)	06:46		19:14 (2)			04:37		21:12 (5)
	15:57	16:57	18:00				15			17:30 (1)	20:05	20	19:34 (2)			22:04	13	21:25 (5)
5	08:56	08:13	07:07							17:15 (1)	06:44		19:11 (2)			04:36		21:11 (5)
	15:58	16:59	18:02				18			17:33 (1)	20:07	24	19:35 (2)			22:05	15	21:26 (5)
6	08:56	08:11	07:04							17:14 (1)	06:41		19:09 (2)			04:36		21:11 (5)
	16:00	17:02	18:04				21			17:35 (1)	20:10	27	19:36 (2)			22:06	16	21:27 (5)
7	08:55	08:09	07:01							17:13 (1)	06:38		19:08 (2)			04:35		21:10 (5)
	16:01	17:04	18:06				22			17:35 (1)	20:12	29	19:37 (2)			22:07	17	21:27 (5)
8	08:54	08:07	06:59							17:14 (1)	06:36		19:07 (2)			04:34		21:10 (5)
	16:03	17:06	18:08				21			17:35 (1)	20:14	30	19:37 (2)			22:08	19	21:29 (5)
9	08:54	08:05	06:56							17:14 (1)	06:33		19:06 (2)			04:33		21:10 (5)
	16:04	17:08	18:11				20			17:34 (1)	20:16	32	19:38 (2)			22:09	19	21:29 (5)
10	08:53	08:03	06:53							17:14 (1)	06:31		19:05 (2)			04:33		21:10 (5)
	16:06	17:11	18:13				19			17:33 (1)	20:18	33	19:38 (2)			22:10	21	21:31 (5)
11	08:52	08:00	06:51							17:15 (1)	06:28		19:04 (2)			04:32		21:10 (5)
	16:08	17:13	18:15				16			17:31 (1)	20:20	34	19:38 (2)			22:11	21	21:31 (5)
12	08:51	07:58	06:48							17:17 (1)	06:25		19:04 (2)			04:32		21:10 (5)
	16:09	17:15	18:17				13			17:30 (1)	20:22	34	19:38 (2)			22:12	22	21:32 (5)
13	08:50	07:56	06:45							17:19 (1)	06:23		19:03 (2)			04:31		21:10 (5)
	16:11	17:18	18:19				7			17:26 (1)	20:24	35	19:38 (2)			22:13	23	21:33 (5)
14	08:49	07:54	06:43								06:20		19:03 (2)			04:31		21:11 (5)
	16:13	17:20	18:21								20:26	35	19:38 (2)			22:14	23	21:34 (5)
15	08:48	07:51	06:40								06:17		19:03 (2)			04:30		21:10 (5)
	16:15	17:22	18:23								20:28	34	19:37 (2)			22:14	24	21:34 (5)
16	08:47	07:49	06:37								06:15		19:03 (2)			04:30		21:10 (5)
	16:17	17:24	18:25								20:31	34	19:37 (2)			22:15	24	21:34 (5)
17	08:46	07:47	06:35								06:12		19:03 (2)			04:30		21:10 (5)
	16:19	17:27	18:28								20:33	33	19:36 (2)			22:16	24	21:34 (5)
18	08:44	07:44	06:32								06:10		19:04 (2)			04:30		21:10 (5)
	16:21	17:29	18:30								20:35	32	19:36 (2)			22:16	25	21:35 (5)
19	08:43	07:42	06:29								06:07		19:04 (2)			04:30		21:11 (5)
	16:23	17:31	18:32								20:37	30	19:34 (2)			22:16	24	21:35 (5)
20	08:42	07:39	06:27								06:05		19:05 (2)			04:30		21:11 (5)
	16:25	17:33	18:34								20:39	28	19:33 (2)			22:17	24	21:35 (5)
21	08:40	07:37	06:24								06:02		19:06 (2)			04:30		21:12 (5)
	16:27	17:36	18:36								20:41	27	19:33 (2)			22:17	24	21:36 (5)
22	08:39	07:34	06:21								06:00		19:07 (2)			04:30		21:12 (5)
	16:29	17:38	18:38								20:43	24	19:31 (2)			22:17	24	21:36 (5)
23	08:37	07:32	06:19								05:57		19:08 (2)			04:30		21:12 (5)
	16:31	17:40	18:40								20:45	21	19:29 (2)			22:17	24	21:36 (5)
24	08:35	07:30	06:16								05:55		19:11 (2)			04:31		21:12 (5)
	16:33	17:42	18:42								20:47	16	19:27 (2)			22:17	24	21:36 (5)
25	08:34	07:27	06:13								05:52		19:13 (2)			04:31		21:12 (5)
	16:35	17:44	18:44								20:49	10	19:23 (2)			22:17	25	21:37 (5)
26	08:32	07:25	06:11								05:50					04:32		21:12 (5)
	16:37	17:47	18:47								20:51		21:50			22:17	24	21:36 (5)
27	08:30	07:22	06:08								05:47		21:50			04:32		21:13 (5)
	16:39	17:49	18:49								20:54		21:52			22:17	24	21:37 (5)
28	08:29	07:19	06:05								05:45		21:53			04:33		21:13 (5)
	16:42	17:51	18:51								20:56		21:53			22:17	23	21:36 (5)
29	08:27		07:03								05:43		21:55			04:33		21:13 (5)
	16:44		19:53								20:58		21:55			22:17	23	21:36 (5)
30	08:25		07:00								05:40		21:57		21:16 (5)	04:34		21:14 (5)
	16:46		19:55								21:00		21:57	2	21:18 (5)	22:16	22	21:36 (5)
31	08:23		06:57										04:42		21:14 (5)			
	16:48		19:57										21:58	6	21:20 (5)			
Potential sun hours	234	266	366							426			509			530		
Total, worst case							199				643		8			621		
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							80				300		5			354		

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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Mazgi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (222)  
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		21:14 (5)	05:21					06:23		19:04 (2)	07:23		17:57 (1)	07:29	08:31				
	22:16	21	21:35 (5)	21:35					20:20	34	19:38 (2)	18:59	11	18:08 (1)	16:41	15:50				
2	04:36		21:14 (5)	05:23					06:25		19:04 (2)	07:25		17:54 (1)	07:31	08:33				
	22:16	21	21:35 (5)	21:32					20:18	33	19:37 (2)	18:57	15	18:09 (1)	16:39	15:49				
3	04:36		21:15 (5)	05:25					06:27		19:03 (2)	07:27		17:53 (1)	07:33	08:34				
	22:15	20	21:35 (5)	21:30					20:15	32	19:35 (2)	18:54	17	18:10 (1)	16:37	15:48				
4	04:37		21:16 (5)	05:27					06:29		19:04 (2)	07:29		17:51 (1)	07:36	08:36				
	22:14	18	21:34 (5)	21:28					20:12	30	19:34 (2)	18:51	20	18:11 (1)	16:35	15:47				
5	04:38		21:16 (5)	05:29					06:31		19:04 (2)	07:31		17:50 (1)	07:38	08:38				
	22:14	18	21:34 (5)	21:26					20:10	29	19:33 (2)	18:49	21	18:11 (1)	16:33	15:47				
6	04:39		21:17 (5)	05:31					06:33		19:05 (2)	07:34		17:49 (1)	07:40	08:39				
	22:13	16	21:33 (5)	21:24					20:07	27	19:32 (2)	18:46	22	18:11 (1)	16:30	15:46				
7	04:41		21:17 (5)	05:32					06:35		19:06 (2)	07:36		17:49 (1)	07:42	08:41				
	22:12	16	21:33 (5)	21:22					20:04	24	19:30 (2)	18:43	21	18:10 (1)	16:28	15:45				
8	04:42		21:18 (5)	05:34					06:37		19:08 (2)	07:38		17:50 (1)	07:44	08:42				
	22:11	14	21:32 (5)	21:20					20:02	20	19:28 (2)	18:41	20	18:10 (1)	16:26	15:45				
9	04:43		21:19 (5)	05:36					06:39		19:10 (2)	07:40		17:50 (1)	07:46	08:43				
	22:10	12	21:31 (5)	21:17					19:59	15	19:25 (2)	18:38	17	18:07 (1)	16:24	15:44				
10	04:44		21:19 (5)	05:38					06:41		19:14 (2)	07:42		17:50 (1)	07:49	08:45				
	22:09	11	21:30 (5)	21:15					19:56	7	19:21 (2)	18:36	14	18:04 (1)	16:22	15:44				
11	04:45		21:20 (5)	05:40					06:43			07:44		17:50 (1)	07:51	08:46				
	22:08	9	21:29 (5)	21:13					19:53			18:33	11	18:01 (1)	16:20	15:43				
12	04:47		21:22 (5)	05:42					06:45			07:46		17:51 (1)	07:53	08:47				
	22:07	7	21:29 (5)	21:10					19:51			18:30	7	17:58 (1)	16:18	15:43				
13	04:48		21:24 (5)	05:44					06:47			07:48		17:53 (1)	07:55	08:48				
	22:06	3	21:27 (5)	21:08					19:48			18:28	3	17:56 (1)	16:16	15:43				
14	04:50			05:47					06:49			07:50			07:57	08:50				
	22:05			21:06					19:45			18:25			16:15	15:43				
15	04:51			05:49					06:51			07:52			07:59	08:51				
	22:03			21:03					19:43			18:23			16:13	15:43				
16	04:53			05:51					06:53			07:54			08:02	08:52				
	22:02			21:01					19:40			18:20			16:11	15:43				
17	04:54			05:53					06:55			07:57			08:04	08:52				
	22:01			20:58					19:37			18:17			16:09	15:43				
18	04:56			05:55				19:19 (2)	06:57			07:59			08:06	08:53				
	21:59			20:56	12			19:31 (2)	19:35			18:15			16:08	15:43				
19	04:57			05:57				19:16 (2)	06:59			08:01			08:08	08:54				
	21:58			20:53	17			19:33 (2)	19:32			18:12			16:06	15:43				
20	04:59			05:59				19:14 (2)	07:01			08:03			08:10	08:55				
	21:56			20:51	21			19:35 (2)	19:29			18:10			16:04	15:43				
21	05:01			06:01				19:12 (2)	07:03			08:05			08:12	08:55				
	21:55			20:49	24			19:36 (2)	19:26			18:07			16:03	15:44				
22	05:02			06:03				19:11 (2)	07:05			08:07			08:14	08:56				
	21:53			20:46	26			19:37 (2)	19:24			18:05			16:01	15:44				
23	05:04			06:05				19:08 (2)	07:07			08:09			08:16	08:56				
	21:51			20:43	29			19:37 (2)	19:21			18:03			16:00	15:45				
24	05:06			06:07				19:07 (2)	07:09			08:12			08:18	08:57				
	21:50			20:41	31			19:38 (2)	19:18			18:00			15:58	15:45				
25	05:08			06:09				19:06 (2)	07:11			07:14			08:20	08:57				
	21:48			20:38	32			19:38 (2)	19:16			16:58			15:57	15:46				
26	05:10			06:11				19:06 (2)	07:13			07:16			08:22	08:58				
	21:46			20:36	33			19:39 (2)	19:13			16:55			15:56	15:47				
27	05:11			06:13				19:05 (2)	07:15			07:18			08:24	08:58				
	21:44			20:33	34			19:39 (2)	19:10			16:53			15:54	15:48				
28	05:13			06:15				19:05 (2)	07:17			07:20			08:26	08:58				
	21:42			20:31	34			19:39 (2)	19:07			16:51			15:53	15:48				
29	05:15			06:17				19:04 (2)	07:19			07:22			08:27	08:58				
	21:40			20:28	35			19:39 (2)	19:05			16:48			15:52	15:49				
30	05:17			06:19				19:04 (2)	07:21			07:25			08:29	08:58				
	21:39			20:25	35			19:39 (2)	19:02			16:46			15:51	15:50				
31	05:19			06:21				19:04 (2)				07:27				08:58				
	21:37			20:23	34			19:38 (2)				16:44				15:52				
Potential sun hours	530			470				385				323			247	215				
Total, worst case		186			397			251				199								
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		89			202			116				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)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Mazmazgi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (216)  
 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	08:58 15:53	08:21 16:50	07:17 17:53	06:54 19:59	05:38 21:02	19:34 (2) 22:00
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:04	19:34 (2) 22:01
3	08:57 15:56	08:17 16:55	07:12 17:58	06:49 20:03	05:33 21:06	19:33 (2) 22:02
4	08:57 15:57	08:15 16:57	07:09 18:00	06:46 20:05	05:31 21:08	19:33 (2) 22:04
5	08:56 15:58	08:13 16:59	07:07 18:02	06:44 20:07	05:29 21:10	19:33 (2) 22:05
6	08:56 16:00	08:11 17:02	07:04 18:04	06:41 20:10	05:26 21:12	19:34 (2) 22:06
7	08:55 16:01	08:09 17:04	07:01 18:06	06:38 20:12	05:24 21:14	19:34 (2) 22:07
8	08:54 16:03	08:07 17:06	06:59 18:08	06:36 20:14	05:22 21:16	19:34 (2) 22:08
9	08:54 16:04	08:05 17:09	06:56 18:11	17:36 (1) 17:42 (1)	06:33 20:16	19:35 (2) 22:09
10	08:53 16:06	08:03 17:11	06:53 18:13	17:33 (1) 17:44 (1)	06:31 20:18	19:35 (2) 22:10
11	08:52 16:08	08:00 17:13	06:51 18:15	17:32 (1) 17:46 (1)	06:28 20:20	19:36 (2) 22:11
12	08:51 16:10	07:58 17:15	06:48 18:17	17:31 (1) 17:49 (1)	06:25 20:22	19:37 (2) 22:12
13	08:50 16:11	07:56 17:18	06:46 18:19	17:30 (1) 17:51 (1)	06:23 20:24	19:38 (2) 22:13
14	08:49 16:13	07:54 17:20	06:43 18:21	17:29 (1) 17:51 (1)	06:20 20:26	19:39 (2) 22:14
15	08:48 16:15	07:51 17:22	06:40 18:23	17:29 (1) 17:52 (1)	06:17 20:28	19:40 (2) 22:14
16	08:47 16:17	07:49 17:24	06:37 18:25	17:29 (1) 17:51 (1)	06:15 20:31	19:42 (2) 22:15
17	08:45 16:19	07:47 17:27	06:35 18:28	17:28 (1) 17:50 (1)	06:12 20:33	19:43 (2) 22:16
18	08:44 16:21	07:44 17:29	06:32 18:30	17:28 (1) 17:49 (1)	06:10 20:35	19:45 (2) 22:16
19	08:43 16:23	07:42 17:31	06:29 18:32	17:29 (1) 17:49 (1)	06:07 20:37	19:48 (2) 22:16
20	08:41 16:25	07:39 17:33	06:27 18:34	17:30 (1) 17:47 (1)	06:05 20:39	19:50 (2) 22:17
21	08:40 16:27	07:37 17:36	06:24 18:36	17:31 (1) 17:45 (1)	06:02 20:41	19:44 (2) 22:17
22	08:39 16:29	07:34 17:38	06:21 18:38	17:34 (1) 17:43 (1)	06:00 20:43	19:41 (2) 22:17
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	19:40 (2) 20:07 (2)	04:53 21:45
24	08:35 16:33	07:30 17:42	06:16 18:42	05:55 20:47	19:39 (2) 20:08 (2)	04:52 21:47
25	08:34 16:35	07:27 17:44	06:13 18:44	05:52 20:49	19:37 (2) 20:08 (2)	04:50 21:49
26	08:32 16:37	07:25 17:47	06:11 18:47	05:50 20:51	19:37 (2) 20:09 (2)	04:49 21:50
27	08:30 16:39	07:22 17:49	06:08 18:49	05:47 20:54	19:36 (2) 20:10 (2)	04:47 21:52
28	08:29 16:42	07:19 17:51	06:05 18:51	05:45 20:56	19:35 (2) 20:10 (2)	04:46 21:53
29	08:27 16:44		07:03 19:53	05:43 20:58	19:34 (2) 20:10 (2)	04:44 21:55
30	08:25 16:46		07:00 19:55	05:40 21:00	19:34 (2) 20:10 (2)	04:43 21:57
31	08:23 16:48		06:57 19:57		04:42 21:58	
Potential sun hours	234	266	366	426	509	530
Total, worst case			240	328	545	
Sun reduction			0,40	0,47	0,59	
Oper. time red.			1,00	1,00	1,00	
Wind dir. red.			1,00	1,00	1,00	
Total reduction			0,40	0,47	0,59	
Total, real			97	153	320	

Table 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Mazmazgi - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (216)  
 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	19:47 (2)	06:23	07:23	18:10 (1)
	22:16	21:35	20:17 (2)	20:20	18:59	16:41
2	04:36	05:23	19:46 (2)	06:25	07:25	18:29 (1)
	22:16	21:32	20:17 (2)	20:18	18:26 (1)	16:31
3	04:36	05:25	19:45 (2)	06:27	07:27	18:11 (1)
	22:15	21:30	20:18 (2)	20:15	18:54	16:37
4	04:37	05:27	19:45 (2)	06:29	07:29	18:12 (1)
	22:14	21:28	20:18 (2)	20:12	18:51	16:35
5	04:38	05:29	19:44 (2)	06:31	07:31	18:15 (1)
	22:14	21:26	20:19 (2)	20:10	18:49	16:33
6	04:39	05:31	19:44 (2)	06:33	07:34	18:18 (1)
	22:13	21:24	20:19 (2)	20:07	18:46	16:30
7	04:41	05:33	19:43 (2)	06:35	07:36	18:18 (1)
	22:12	21:22	20:19 (2)	20:04	18:43	16:28
8	04:42	05:34	19:43 (2)	06:37	07:38	18:16 (1)
	22:11	21:20	20:19 (2)	20:02	18:41	16:26
9	04:43	05:36	19:43 (2)	06:39	07:40	18:15 (1)
	22:10	21:17	20:19 (2)	19:59	18:38	16:24
10	04:44	05:38	19:43 (2)	06:41	07:42	18:14 (1)
	22:09	21:15	20:19 (2)	19:56	18:36	16:22
11	04:45	05:40	19:43 (2)	06:43	07:44	18:13 (1)
	22:08	21:13	20:19 (2)	19:54	18:33	16:20
12	04:47	05:42	19:43 (2)	06:45	07:46	18:12 (1)
	22:07	21:10	20:19 (2)	19:51	18:30	16:18
13	04:48	05:45	19:43 (2)	06:47	07:48	18:11 (1)
	22:06	21:08	20:19 (2)	19:48	18:28	16:16
14	04:50	05:47	19:42 (2)	06:49	07:50	18:10 (1)
	22:05	21:06	20:17 (2)	19:45	18:25	16:15
15	04:51	05:49	19:42 (2)	06:51	07:52	18:09 (1)
	22:03	21:03	20:17 (2)	19:43	18:23	16:13
16	04:53	05:51	19:43 (2)	06:53	07:54	18:08 (1)
	22:02	21:01	20:16 (2)	19:40	18:20	16:11
17	04:54	05:53	19:43 (2)	06:55	07:57	18:07 (1)
	22:01	20:58	20:16 (2)	19:37	18:17	16:09
18	04:56	05:55	19:44 (2)	06:57	07:59	18:06 (1)
	21:59	20:56	20:15 (2)	19:35	18:15	16:08
19	04:57	05:57	19:45 (2)	06:59	08:01	18:04 (1)
	21:58	20:53	20:14 (2)	19:32	18:12	16:06
20	04:59	05:59	19:46 (2)	07:01	08:03	18:03 (1)
	21:56	20:51	20:12 (2)	19:29	18:10	16:04
21	05:01	06:01	19:47 (2)	07:03	18:21 (1)	18:05 (1)
	21:55	20:49	20:11 (2)	19:26	18:17 (1)	18:07 (1)
22	05:02	06:03	19:49 (2)	07:05	18:17 (1)	18:07 (1)
	21:53	20:46	20:09 (2)	19:24	18:30 (1)	18:05 (1)
23	05:04	06:05	19:50 (2)	07:07	18:15 (1)	18:09 (1)
	21:51	20:43	20:05 (2)	19:21	18:31 (1)	18:03 (1)
24	05:06	06:07	19:55 (2)	07:09	18:13 (1)	18:12 (1)
	21:50	20:41	20:00 (2)	19:18	18:32 (1)	18:00 (1)
25	05:08	19:57 (2)	06:09	07:11	18:12 (1)	18:14 (1)
	21:48	20:08 (2)	20:38	19:16	18:33 (1)	18:16 (1)
26	05:10	19:54 (2)	06:11	07:13	18:11 (1)	18:16 (1)
	21:46	20:09 (2)	20:36	19:13	18:33 (1)	18:15 (1)
27	05:11	19:53 (2)	06:13	07:15	18:10 (1)	18:18 (1)
	21:44	20:11 (2)	20:33	19:10	18:33 (1)	18:16 (1)
28	05:13	19:51 (2)	06:15	07:17	18:10 (1)	18:20 (1)
	21:42	20:13 (2)	20:31	19:07	18:33 (1)	18:17 (1)
29	05:15	19:49 (2)	06:17	07:19	18:10 (1)	18:22 (1)
	21:40	20:14 (2)	20:28	19:05	18:32 (1)	18:18 (1)
30	05:17	19:49 (2)	06:19	07:21	18:10 (1)	18:25 (1)
	21:39	20:15 (2)	20:25	19:02	18:32 (1)	18:22 (1)
31	05:19	19:48 (2)	06:21			
	21:37	20:16 (2)	20:23			
Potential sun hours	530	470	385	323	247	215
Total, worst case	145	735	187	58		
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	69	374	87	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)
	Minutes with flicker		

Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Mazpekš as - Shadow Receptor:  $1,0 \times 1,0$  Azimuth:  $3,1^\circ$  Slope:  $90,0^\circ$  (221)  
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 21:59	20:49 (3) 21:12 (3)	04:35 21:15 (3)	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41
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	20:50 (3) 21:12 (3)	04:35 22:15	05:23 21:32	06:25 20:17	07:25 18:57	07:31 16:39
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	20:50 (3) 21:12 (3)	04:36 22:15	05:25 21:30	06:27 20:15	07:27 18:54	07:33 16:37
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	20:50 (3) 21:11 (3)	04:37 22:14	05:27 21:33	06:29 20:12	07:29 18:51	07:35 16:35
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	20:51 (3) 21:12 (3)	04:38 22:14	05:28 21:33	06:31 20:10	07:31 18:49	07:38 16:33
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	20:51 (3) 21:12 (3)	04:39 22:13	05:30 21:34	06:33 20:07	07:33 18:46	07:40 16:30
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	20:51 (3) 21:11 (3)	04:40 22:12	05:32 21:33	06:35 20:04	07:36 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	04:34 22:08	20:52 (3) 21:12 (3)	04:42 22:11	05:34 21:39	06:37 20:02	07:38 18:41	07:44 16:26
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	20:52 (3) 21:11 (3)	04:43 22:10	05:36 21:37	06:39 19:59	07:40 18:38	07:46 16:24
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	20:53 (3) 21:12 (3)	04:44 22:09	05:38 21:35	06:41 19:56	07:42 18:35	07:49 16:22
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	20:53 (3) 21:11 (3)	04:45 22:08	05:40 21:33	06:43 19:53	07:44 18:33	07:51 16:20
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	20:54 (3) 21:11 (3)	04:47 22:07	05:42 21:30	06:45 19:51	07:46 18:30	07:53 16:18
13	08:50 16:11	07:56 17:17	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:13	20:54 (3) 21:12 (3)	04:48 22:06	05:44 21:33	06:47 19:48	07:48 18:28	07:55 16:16
14	08:49 16:13	07:53 17:20	06:43 18:21	06:20 20:26	05:10 21:28	04:31 22:14	20:55 (3) 21:12 (3)	04:50 22:05	05:46 21:33	06:49 19:45	07:50 18:25	07:57 16:15
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	20:55 (3) 21:11 (3)	04:51 22:03	05:48 21:33	06:51 19:43	07:52 18:23	07:59 16:13
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	20:55 (3) 21:11 (3)	04:53 22:02	05:50 21:33	06:53 19:40	07:54 18:20	08:01 16:11
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	20:56 (3) 21:12 (3)	04:54 22:01	05:52 21:33	06:55 19:37	07:56 18:17	08:04 16:09
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	20:56 (3) 21:12 (3)	04:56 21:59	05:55 21:33	06:57 19:34	07:59 18:15	08:06 16:07
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	20:56 (3) 21:12 (3)	04:57 21:58	05:57 21:33	06:59 19:32	08:01 18:12	08:08 16:06
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	20:56 (3) 21:12 (3)	04:59 21:56	05:59 21:33	07:01 19:29	08:03 18:10	08:10 16:04
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:17	20:57 (3) 21:13 (3)	05:01 21:55	06:01 21:33	07:03 19:26	08:05 18:07	08:12 16:03
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	20:57 (3) 21:13 (3)	05:02 21:53	06:03 21:33	07:05 19:24	08:07 18:05	08:14 16:01
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	20:57 (3) 21:13 (3)	05:04 21:51	06:05 21:33	07:07 19:21	08:09 18:02	08:16 16:00
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	20:57 (3) 21:13 (3)	05:06 21:50	06:07 21:33	07:09 19:18	08:11 18:00	08:18 15:58
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	20:58 (3) 21:14 (3)	05:08 21:48	06:09 21:33	07:11 19:16	07:14 16:58	08:20 15:57
26	08:32 16:37	07:24 17:47	06:11 18:46	05:50 20:51	04:49 21:50	04:31 22:17	20:57 (3) 21:13 (3)	05:09 21:46	06:11 21:33	07:13 19:13	07:16 16:55	08:22 15:56
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	20:58 (3) 21:14 (3)	05:11 21:44	06:13 21:33	07:15 19:10	07:18 16:53	08:24 15:54
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	20:57 (3) 21:14 (3)	05:13 21:42	06:15 21:33	07:17 19:07	07:20 16:50	08:26 15:53
29	08:27 16:44		07:02 19:53	05:42 20:58	04:44 21:55	04:33 22:17	20:58 (3) 21:15 (3)	05:15 21:40	06:17 21:33	07:19 19:05	07:22 16:48	08:27 15:52
30	08:25 16:46		07:00 19:55	05:40 21:00	04:43 21:57	04:34 22:16	20:58 (3) 21:16 (3)	05:17 21:38	06:19 21:33	07:21 19:02	07:25 16:46	08:29 15:51
31	08:23 16:48		06:57 19:57		04:42 21:58	04:33 22:16		05:19 21:36	06:21 20:23		07:27 16:44	08:58 15:51
Potential sun hours	234	266	366	426	509	530	530	506	470	385	323	247
Total, worst case					277	538		506				215
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					163	307		241				

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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	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	16:41	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
	15:55	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	22:14	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	08:36
	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	07:37	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	22:12	21:24	20:07	18:46	16:31	15:46
7	08:55	08:09	07:01	06:38	05:24	04:35	04:41	05:33	06:35	07:35	07:42	08:40
	16:02	17:04	18:06	20:11	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	08:52	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	07:50	08:46
	16:08	17:13	18:15	20:20	21:22	22:11	22:08	21:12	19:53	18:33	16:20	15:44
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	22:12	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	08:47	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	22:14	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	07:58	08:05	08:53
	16:21	17:29	18:30	20:34	21:36	22:15	21:59	20:56	19:34	18:15	16:08	15:43
19	08:42	07:42	06:29	06:07	05:00	04:30	04:58	05:57	06:59	08:01	08:07	08:54
	16:23	17:31	18:32	20:37	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	08:10	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	08:56
	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	08:33	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	19:16	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
	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	18:48	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	18:51	20:55	21:53	22:17	21:42	20:30	19:07	17:51	15:54	15:49
29	08:27		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	21:55	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
	16:48		19:57		21:58		21:36	20:23		16:44		15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	07:25 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	08:50 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 21:08	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	04:32 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 18:10		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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	08:21			07:16	16:55 (3)	06:54		05:38	20:04 (5)	04:41	
	15:53	16:50			17:53	18	17:13 (3)	19:59	21:01	21	20:25 (5)	21:59
2	08:57	08:19			07:14	16:56 (3)	06:51		05:35		20:04 (5)	04:40
	15:54	16:53			17:55	16	17:12 (3)	20:01	21:04	21	20:25 (5)	22:00
3	08:56	08:17			07:11	16:58 (3)	06:49		05:33		20:05 (5)	04:38
	15:55	16:55			17:57	12	17:10 (3)	20:03	21:06	19	20:24 (5)	22:02
4	08:56	08:15			07:09	17:00 (3)	06:46		05:31		20:05 (5)	04:37
	15:57	16:57			17:59	7	17:07 (3)	20:05	21:08	19	20:24 (5)	22:03
5	08:56	08:13			07:06		06:43		05:28		20:06 (5)	04:36
	15:58	16:59			18:02		20:07		21:10	17	20:23 (5)	22:04
6	08:55	08:11			07:04		06:41		05:26		20:07 (5)	04:36
	16:00	17:02			18:04		20:09		21:12	15	20:22 (5)	22:05
7	08:54	08:09			07:01		06:38		05:24		20:09 (5)	04:35
	16:01	17:04			18:06		20:11		21:14	11	20:20 (5)	22:07
8	08:54	08:06			06:58		06:36		05:22		20:11 (5)	04:34
	16:03	17:06			18:08		20:13		21:16	7	20:18 (5)	22:08
9	08:53	08:04			06:56		06:33		05:20			04:33
	16:04	17:08			18:10		20:15		21:18			22:09
10	08:52	08:02			06:53		06:30		05:18			04:33
	16:06	17:11			18:12		20:18		21:20			22:10
11	08:51	08:00			06:50		06:28		05:16			04:32
	16:08	17:13			18:15		20:20		21:22			22:11
12	08:50	07:58			06:48		06:25		05:13			04:32
	16:09	17:15			18:17		20:22		21:24			22:12
13	08:49	07:55			06:45		06:22		05:11			04:31
	16:11	17:17			18:19		20:24		21:26			22:12
14	08:48	07:53			06:42		06:20		05:09			04:31
	16:13	17:20			18:21		20:26		21:28			22:13
15	08:47	07:51			06:40		06:17		05:08			04:30
	16:15	17:22			18:23		20:28		21:30			22:14
16	08:46	07:48			06:37		06:15		05:06			04:30
	16:17	17:24			18:25		20:30		21:32			22:14
17	08:45	07:46			06:34	17:56 (4)	06:12		05:04			04:30
	16:19	17:26			18:27	3	17:59 (4)	20:32	21:34			22:15
18	08:44	07:44			06:32	17:53 (4)	06:10		05:02			04:30
	16:21	17:29			18:29	8	18:01 (4)	20:34	21:35			22:15
19	08:42	07:41			06:29	17:51 (4)	06:07		05:00			04:30
	16:23	17:31			18:31	12	18:03 (4)	20:36	21:37			22:16
20	08:41	07:39	16:59 (3)		06:26	17:50 (4)	06:04		04:58			04:30
	16:25	17:33	3	17:02 (3)	18:34	16	18:06 (4)	20:38	21:39			22:16
21	08:40	07:36	16:58 (3)		06:24	17:49 (4)	06:02		04:57			04:30
	16:27	17:35	7	17:05 (3)	18:36	19	18:08 (4)	20:41	21:41			22:16
22	08:38	07:34	16:56 (3)		06:21	17:47 (4)	05:59		04:55			04:30
	16:29	17:37	11	17:07 (3)	18:38	22	18:09 (4)	20:43	21:43			22:17
23	08:36	07:32	16:56 (3)		06:18	17:47 (4)	05:57	20:11 (5)	04:53			04:30
	16:31	17:40	14	17:10 (3)	18:40	24	18:11 (4)	20:45	3	20:14 (5)	21:45	22:17
24	08:35	07:29	16:55 (3)		06:16	17:47 (4)	05:54	20:08 (5)	04:52			04:31
	16:33	17:42	17	17:12 (3)	18:42	23	18:10 (4)	20:47	7	20:15 (5)	21:46	22:17
25	08:33	07:27	16:54 (3)		06:13	17:46 (4)	05:52	20:07 (5)	04:50			04:31
	16:35	17:44	20	17:14 (3)	18:44	23	18:09 (4)	20:49	11	20:18 (5)	21:48	22:17
26	08:32	07:24	16:54 (3)		06:10	17:46 (4)	05:50	20:07 (5)	04:49			04:32
	16:37	17:46	21	17:15 (3)	18:46	22	18:08 (4)	20:51	13	20:20 (5)	21:50	22:17
27	08:30	07:22	16:54 (3)		06:08	17:47 (4)	05:47	20:05 (5)	04:47			04:32
	16:39	17:49	20	17:14 (3)	18:48	21	18:08 (4)	20:53	16	20:21 (5)	21:51	22:17
28	08:28	07:19	16:54 (3)		06:05	17:47 (4)	05:45	20:05 (5)	04:46			04:33
	16:42	17:51	19	17:13 (3)	18:50	20	18:07 (4)	20:55	18	20:23 (5)	21:53	22:16
29	08:26				07:02	18:48 (4)	05:42	20:05 (5)	04:44			04:33
	16:44				19:52	17	19:05 (4)	20:57	21	20:26 (5)	21:54	22:16
30	08:25				07:00	18:50 (4)	05:40	20:05 (5)	04:43			04:34
	16:46				19:55	13	19:03 (4)	20:59	21	20:26 (5)	21:56	22:16
31	08:23				06:57	18:53 (4)						
	16:48				19:57	6	18:59 (4)		21:57			
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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: OŠ i - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (177)  
 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

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0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 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	06:39 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
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 16:20	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	08:58 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 18:05	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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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		20:35 (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		05:54	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)	20:55	19:34	18:15	16:08	15:43
19	08:42	07:41	06:29	06:07	05:00		20:25 (3)	04:30	04:57		20:39 (3)	20:56	06:59	08:00	08:07	08:53
	16:23	17:31	18:32	20:36	21:37	19	20:44 (3)	22:16	21:57	10	20:49 (3)	20:53	19:31	18:12	16:06	15:43
20	08:41	07:39	06:26	06:04	04:58		20:25 (3)	04:30	04:59		20:38 (3)	20:58	07:01	08:02	08:09	08:54
	16:25	17:33	18:34	20:38	21:39	19	20:44 (3)	22:16	21:56	13	20:51 (3)	20:51	19:29	18:10	16:04	15:44
21	08:39	07:36	06:24	06:02	04:57		20:26 (3)	04:30	05:01		20:37 (3)	20:60	07:03	08:05	08:11	08:55
	16:27	17:35	18:36	20:41	21:41	17	20:43 (3)	22:16	21:54	14	20:51 (3)	20:48	19:26	18:07	16:03	15:44
22	08:38	07:34	06:21	05:59	04:55		20:26 (3)	04:30	05:02		20:36 (3)	20:63	07:05	08:07	08:13	08:55
	16:29	17:38	18:38	20:43	21:43	16	20:42 (3)	22:17	21:52	17	20:53 (3)	20:46	19:23	18:05	16:01	15:44
23	08:36	07:32	06:18	05:57	04:53		20:28 (3)	04:31	05:04		20:35 (3)	20:65	07:07	08:09	08:15	08:56
	16:31	17:40	18:40	20:45	21:44	14	20:42 (3)	22:17	21:51	18	20:53 (3)	20:43	19:21	18:02	16:00	15:45
24	08:35	07:29	06:16	05:55	04:52		20:29 (3)	04:31	05:06		20:35 (3)	20:67	07:09	08:11	08:17	08:56
	16:33	17:42	18:42	20:47	21:46	11	20:40 (3)	22:17	21:49	19	20:54 (3)	20:40	19:18	18:00	15:58	15:45
25	08:33	07:27	06:13	05:52	04:50		20:31 (3)	04:31	05:08		20:35 (3)	20:69	07:11	07:13	08:19	08:57
	16:35	17:44	18:44	20:49	21:48	8	20:39 (3)	22:17	21:47	20	20:55 (3)	20:38	19:15	16:58	15:57	15:46
26	08:32	07:24	06:10	05:50	04:49		20:34 (3)	04:32	05:10		20:34 (3)	20:61	07:13	07:15	08:21	08:57
	16:37	17:46	18:46	20:51	21:50	2	20:36 (3)	22:17	21:45	21	20:55 (3)	20:35	19:13	16:55	15:56	15:47
27	08:30	07:22	06:08	05:47	04:47			04:32	05:11		20:34 (3)	20:63	07:15	07:18	08:23	08:57
	16:39	17:49	18:48	20:53	21:51			22:17	21:44	21	20:55 (3)	20:33	19:10	16:53	15:54	15:48
28	08:28	07:19	06:05	05:45	04:46			04:33	05:13		20:34 (3)	20:65	07:17	07:20	08:25	08:57
	16:42	17:51	18:50	20:55	21:53			22:16	21:42	22	20:56 (3)	20:30	19:07	16:50	15:53	15:49
29	08:26		07:02	05:42	04:44			04:33	05:15		20:33 (3)	20:67	07:19	07:22	08:27	08:57
	16:44		19:52	20:57	21:54			22:16	21:40	22	20:55 (3)	20:28	19:04	16:48	15:52	15:50
30	08:24		07:00	05:40	04:43			04:34	05:17		20:33 (3)	20:69	07:21	07:24	08:29	08:57
	16:46		19:55	20:59	21:56				21:38	23	20:56 (3)	20:25	19:02	16:46		15:51
31	08:23		06:57		04:42				05:19		20:33 (3)	20:62		07:26		08:57
	16:48		19:57		21:57				21:36	23	20:56 (3)	20:22		16:43		15:52
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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 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	07:29 16:41	08:30 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:36 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	07:11 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 15:58	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 16:30	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	04:41 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	06:58 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	08:45 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 22:07	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	07:55 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:12	04:48 22:05	05:45 21:08	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 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:49 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:14	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 21:35	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	08:53 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	04:53 21:45	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 20:41	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 18:15	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 18:15	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 18:10	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 18:15	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 18:15	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 18:15	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 18:15	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Pildavas - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (218)  
 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
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 22:16	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 17:57	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 19:12	08:15 17:55	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 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	08:19 17:50	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	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:04	08:21 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	08:22 17:46	08:28 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 16:43		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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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
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	08:47 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 22:15	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 16:05	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 21:47	06:09 20:38	07:11 19:16	08:13 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 20:57	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 18:05	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	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Pludoni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (236)  
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 15:54	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 20:14	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
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	04:39 22:13	05:29 21:25	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 17:08	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 18:12	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	06:50 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 17:17	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 16:16	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	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 17:26	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 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	05:11 21:44	06:13 20:33	07:15 19:10	08:18 18:05	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 18:05	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 18:05	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 18:05	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 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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme

Assumptions for shadow calculations

Shadow receptor: Porini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (206)

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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Porini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (206)  
 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
	22:15	22 21:28 (4)	21:34	20:20	34 19:35 (3)	18:59
2	04:36	21:07 (4)	05:23	06:25	19:02 (3)	07:25
	22:15	20 21:27 (4)	21:32	20:17	32 19:34 (3)	18:56
3	04:37	21:08 (4)	05:25	06:27	19:03 (3)	07:27
	22:14	19 21:27 (4)	21:30	20:15	30 19:33 (3)	18:54
4	04:37	21:09 (4)	05:27	06:29	19:04 (3)	07:29
	22:14	18 21:27 (4)	21:28	20:12	27 19:31 (3)	18:51
5	04:38	21:10 (4)	05:29	06:31	19:05 (3)	07:31
	22:13	16 21:26 (4)	21:26	20:09	24 19:29 (3)	18:48
6	04:40	21:11 (4)	05:30	06:33	19:07 (3)	07:33
	22:12	15 21:26 (4)	21:23	20:07	20 19:27 (3)	18:46
7	04:41	21:12 (4)	05:32	06:35	19:10 (3)	07:35
	22:12	13 21:25 (4)	21:21	20:04	13 19:23 (3)	18:43
8	04:42	21:14 (4)	05:34	06:37		07:37
	22:11	9 21:23 (4)	21:19	20:01		18:41
9	04:43	21:17 (4)	05:36	20:08 (6)	06:39	07:39
	22:10	3 21:20 (4)	21:17	6 20:14 (6)	19:59	18:38
10	04:44		05:38	20:05 (6)	06:41	07:41
	22:09		21:14	12 20:17 (6)	19:56	18:35
11	04:46		05:40	19:21 (3)	06:43	07:44
	22:08		21:12	21 20:18 (6)	19:53	18:33
12	04:47		05:42	19:17 (3)	06:45	07:46
	22:07		21:10	32 20:19 (6)	19:50	18:30
13	04:48		05:44	19:14 (3)	06:47	07:48
	22:05		21:08	39 20:19 (6)	19:48	18:28
14	04:50		05:46	19:12 (3)	06:49	07:50
	22:04		21:05	43 20:20 (6)	19:45	18:25
15	04:51		05:48	19:10 (3)	06:51	07:52
	22:03		21:03	48 20:20 (6)	19:42	18:22
16	04:53		05:50	19:09 (3)	06:53	07:54
	22:02		21:00	50 20:20 (6)	19:40	18:20
17	04:54		05:52	19:07 (3)	06:55	07:56
	22:00		20:58	54 20:21 (6)	19:37	18:17
18	04:56		05:54	19:06 (3)	06:57	07:58
	21:59		20:55	55 20:20 (6)	19:34	18:15
19	04:57		05:56	19:05 (3)	06:59	08:00
	21:57		20:53	56 20:20 (6)	19:32	18:12
20	04:59		05:59	19:05 (3)	07:01	08:03
	21:56		20:51	56 20:19 (6)	19:29	18:10
21	05:01		06:01	19:03 (3)	07:03	08:05
	21:54		20:48	55 20:16 (6)	19:26	18:07
22	05:02		06:03	19:02 (3)	07:05	08:07
	21:52		20:46	53 20:14 (6)	19:23	18:05
23	05:04		06:05	19:02 (3)	07:07	08:09
	21:51		20:43	50 20:12 (6)	19:21	18:02
24	05:06		06:07	19:01 (3)	07:09	08:11
	21:49		20:41	47 20:09 (6)	19:18	18:00
25	05:08		06:09	19:01 (3)	07:11	08:13
	21:47		20:38	42 20:07 (6)	19:15	17:58
26	05:10		06:11	19:01 (3)	07:13	08:15
	21:46		20:35	39 19:40 (3)	19:13	17:55
27	05:11		06:13	19:01 (3)	07:15	08:17
	21:44		20:33	39 19:40 (3)	19:10	17:53
28	05:13		06:15	19:01 (3)	07:17	08:19
	21:42		20:30	38 19:39 (3)	19:07	17:50
29	05:15		06:17	19:01 (3)	07:19	08:21
	21:40		20:28	38 19:39 (3)	19:05	17:48
30	05:17		06:19	19:01 (3)	07:21	08:23
	21:38		20:25	37 19:38 (3)	19:02	17:46
31	05:19		06:21	19:01 (3)		07:26
	21:36		20:22	35 19:36 (3)		17:44
Potential sun hours	530		470	385		323
Total, worst case		135	945	180		247
Sun reduction		0,48	0,51	0,46		216
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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Priež lejas - Shadow Receptor:  $1,0 \times 1,0$  Azimuth:  $3,1^\circ$  Slope:  $90,0^\circ$  (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 21:59
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
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
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	19:33 (3) 19:38 (3)	04:37 22:04
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	19:29 (3) 19:40 (3)	05:26 21:12
7	08:54 16:01	08:09 17:04	07:01 18:06	06:38 20:11	19:28 (3) 19:43 (3)	05:24 21:14
8	08:54 16:03	08:06 17:06	06:58 18:08	06:36 20:13	19:26 (3) 19:44 (3)	05:22 21:16
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:15	19:24 (3) 19:46 (3)	05:20 21:18
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	19:24 (3) 19:47 (3)	05:18 21:20
11	08:51 16:08	08:00 17:13	06:50 18:15	06:28 20:20	19:22 (3) 19:47 (3)	05:16 21:22
12	08:50 16:09	07:58 17:15	06:48 18:17	06:25 20:22	19:22 (3) 19:47 (3)	05:14 21:24
13	08:49 16:11	07:55 17:17	06:45 18:19	06:22 20:24	19:22 (3) 19:46 (3)	05:12 21:26
14	08:48 16:13	07:53 17:20	06:42 18:21	06:20 20:26	19:22 (3) 19:47 (3)	05:10 21:28
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	19:21 (3) 19:46 (3)	05:08 21:30
16	08:46 16:17	07:48 17:24	06:37 18:25	06:15 20:30	19:22 (3) 19:45 (3)	05:06 21:32
17	08:45 16:19	07:46 17:26	06:34 18:27	06:12 20:32	19:22 (3) 19:44 (3)	05:04 21:34
18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	19:23 (3) 19:43 (3)	05:02 21:35
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	19:24 (3) 19:41 (3)	05:00 21:37
20	08:41 16:25	07:39 17:33	06:26 18:34	06:04 20:38	19:26 (3) 19:40 (3)	04:58 21:39
21	08:39 16:27	07:36 17:35	06:24 18:36	06:02 20:41	19:27 (3) 19:36 (3)	04:57 21:41
22	08:38 16:29	07:34 17:38	06:21 18:38	05:59 20:43	04:55 21:43	20:31 (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) 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) 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) 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) 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) 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) 22:16
29	08:26 16:44		07:02 19:52	05:42 20:57	04:44 21:54	20:34 (4) 22:16
30	08:25 16:46		07:00 19:55	05:40 20:59	04:43 21:56	20:35 (4) 22:16
31	08:23 16:48		06:57 19:57		04:42 21:57	20:36 (4) 20:53 (4)
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)
	Minutes with flicker		

Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Priež 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.

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

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

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Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	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	22:00	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	07:37	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	22:12	21:24	20:07	18:46	16:31	15:46
7	08:55	08:09	07:01	06:38	05:24	04:35	04:41	05:33	06:35	07:35	07:42	08:40
	16:02	17:04	18:06	20:11	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	08:52	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
	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	04:32	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	04:51	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	22:14	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	07:58	08:05	08:53
	16:21	17:29	18:30	20:34	21:36	22:16	21:59	20:56	19:34	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	08:07	08:54
	16:23	17:31	18:32	20:37	21:37	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	08:56
	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	08:33	07:27	06:13	05:52	04:50	04:32	05:08	06:09	07:11	08:13	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
	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	04:48	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	05:13	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	08:57
	16:44		19:53	20:57	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
	16:48		19:57		21:58		21:36	20:23		16:44		15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

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Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 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 21:46	06:11 20:36	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 22:17	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	07:19 17:53	06:05 19:53	05:45 20:57	04:46 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	07:19 17:55	06:05 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	07:19 17:57	06:05 19:57	05:40 21:58	04:42 21:58	04:32 21:36	05:19 21:36	06:21 20:23	07:26 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	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	22:01	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	07:07	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	22:05	22:13	21:26	20:10	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	21:22	20:04	18:43	16:29	15:45
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	20:02	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	04:44	05:39	06:41	07:42	07:48	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	04:46	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	04:30	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	04:54	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	08:06	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	04:58	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	18:13	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	08:55
	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	04:30	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	20:56	21:53	22:17	21:42	20:31	19:07	17:51	15:53	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		08:58
	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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)	04:44 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)	04:31 22:12	04:48 22:05	05:44 21:07	20:28 (4) 20:34 (4)	06:47 19:48	19:34 (3) 19:41 (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)	04:31 22:13	04:50 22:04	05:46 21:05	20:29 (4) 20:32 (4)	06:49 19:45	19:42 (3) 19:49 (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	04:31 22:14	04:51 22:03	05:48 21:03	20:32 (4) 21:03	06:49 19:42	19:50 (3) 19:42 (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	04:30 22:14	04:53 22:01	05:50 21:00	20:33 (4) 21:00	06:53 19:40	19:51 (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	04:30 22:15	04:54 22:00	05:52 20:58	20:34 (4) 21:07	06:55 19:37	19:52 (3) 19:37 (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	04:30 22:15	04:56 22:05	05:54 20:55	20:35 (4) 21:08	06:57 19:34	19:53 (3) 19:34 (3)	07:58 18:15	08:05 16:07	08:53 15:43
19	08:42 16:23	07:40 17:31	06:29 18:31	06:07 20:36	19:39 (3) 21:37	20:33 (4) 21:37	04:30 22:16	04:57 22:05	05:56 20:53	20:36 (4) 21:11	06:59 19:31	19:54 (3) 19:31 (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	19:40 (3) 21:39	20:34 (4) 22:16	04:30 22:16	04:59 22:05	05:58 20:50	20:37 (4) 21:13	07:01 19:29	19:55 (3) 19:29 (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 20:40	19:41 (3) 21:41	20:35 (4) 22:16	05:01 22:16	05:01 22:05	06:00 20:50	20:38 (4) 21:14	07:03 19:26	19:56 (3) 19:26 (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	19:42 (3) 21:43	20:36 (4) 22:17	05:02 22:17	05:02 22:05	06:02 20:46	20:39 (4) 21:15	07:05 19:23	19:57 (3) 19:23 (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	19:43 (3) 21:44	20:37 (4) 22:17	05:04 22:17	05:04 22:05	06:04 20:43	20:40 (4) 21:16	07:07 19:21	19:58 (3) 19:21 (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	19:44 (3) 21:46	20:38 (4) 22:17	05:06 22:17	05:06 22:05	06:07 20:40	20:41 (4) 21:17	07:09 19:18	19:59 (3) 19:18 (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	19:45 (3) 21:48	20:39 (4) 22:17	05:08 22:17	05:08 22:05	06:09 20:38	20:42 (4) 21:18	07:11 19:15	20:00 (3) 19:15 (3)	08:13 18:03	08:19 16:00	08:57 15:46
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	19:46 (3) 21:50	20:40 (4) 22:17	05:09 22:17	05:09 22:05	06:11 20:35	20:43 (4) 21:19	07:13 19:13	20:01 (3) 19:13 (3)	08:15 18:05	08:21 16:00	08:57 15:47
27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	19:47 (3) 21:51	20:41 (4) 22:17	05:11 22:17	05:11 22:05	06:13 20:33	20:44 (4) 21:20	07:15 19:10	20:02 (3) 19:10 (3)	08:18 18:03	08:23 16:00	08:57 15:48
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 22:05	06:15 20:30	20:45 (4) 21:21	07:17 19:07	20:03 (3) 19:07 (3)	08:20 18:00	08:25 16:00	08:57 15:49
29	08:26 16:44	07:02 17:52	05:42 18:57	05:42 20:57	19:49 (3) 21:54	20:43 (4) 22:16	05:15 22:16	05:15 22:05	06:17 20:28	20:46 (4) 21:22	07:19 19:04	20:04 (3) 19:04 (3)	08:22 18:00	08:27 16:00	08:57 15:49
30	08:24 16:46	07:00 17:54	05:40 18:59	05:40 20:59	19:50 (3) 21:56	20:44 (4) 22:16	05:17 22:16	05:17 22:05	06:19 20:25	20:47 (4) 21:23	07:21 19:02	20:05 (3) 19:02 (3)	08:24 18:00	08:29 16:00	08:57 15:50
31	08:23 16:48	06:57 17:57	05:39 18:57	05:39 20:57	19:51 (3) 21:57	20:45 (4) 22:17	05:19 22:17	05:19 22:05	06:21 20:22	20:48 (4) 21:24	07:23 19:03	20:06 (3) 19:03 (3)	08:26 18:00	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				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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Rukmuli - 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) 21:21 (4)	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 22:12	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)	06:37 18:41	07:37 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	04:33 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)	06:39 18:38	07:39 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	04:33 22:10	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	04:32 22:11	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	04:25 22:12	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)	06:47 18:30	07:46 16:18	08:46 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	04:31 22:22	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	04:31 22:23	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	04:30 22:22	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	04:30 22:21	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)	04:30 22:15	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	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	21:05 (3) 20:04 (3)	04:30 22:15	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	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	21:05 (3) 20:06 (3)	04:30 22:16	21:01 (4) 21:23 (4)	04:50 21:57	21:09 (4) 21:20 (4)	05:56 20:53	19:56 (3) 20:19 (3)	06:59 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	21:05 (3) 20:08 (3)	04:30 22:16	21:02 (4) 21:23 (4)	04:59 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	21:05 (4) 20:09 (3)	04:30 22:16	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	21:05 (4) 20:12 (3)	04:30 22:17	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	21:05 (3) 20:13 (3)	04:30 22:17	21:03 (4) 21:24 (4)	05:04 21:51	21:05 (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	21:05 (3) 20:13 (3)	04:30 22:17	21:02 (4) 21:24 (4)	05:06 21:49	21:07 (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	21:05 (3) 20:13 (3)	04:30 22:17	21:03 (4) 21:24 (4)	05:08 21:47	21:09 (4) 21:24 (4)	06:09 20:38	20:00 (3) 20:07 (3)	07:11 19:15	08:19 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	21:05 (3) 20:13 (3)	04:30 22:17	21:03 (4) 21:24 (4)	05:10 21:45	21:10 (4) 21:24 (4)	06:11 20:35	20:07 (3) 19:13	07:13 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	21:05 (3) 20:12 (3)	04:30 22:17	21:03 (4) 21:25 (4)	05:11 21:44	21:10 (4) 21:25 (4)	06:13 20:33	20:08 (3) 19:10	07:15 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	21:05 (3) 20:12 (3)	04:30 22:16	21:03 (4) 21:25 (4)	05:13 21:42	21:10 (4) 21:25 (4)	06:15 20:30	20:09 (3) 19:07	07:17 16:50	08:25 15:53	08:57 15:49
29	08:26 16:44	07:02 17:52	05:42 18:50	04:44 20:57	04:44 21:54	21:05 (3) 20:12 (3)	04:30 22:16	21:04 (4) 21:25 (4)	05:15 21:40	21:10 (4) 21:25 (4)	06:17 20:28	20:10 (3) 19:04	07:19 16:48	08:27 15:52	08:57 15:49
30	08:24 16:46	07:00 17:55	05:40 18:50	04:43 20:59	04:43 21:56	21:05 (3) 20:11 (3)	04:34 22:16	21:04 (4) 21:26 (4)	05:17 21:38	21:10 (4) 21:26 (4)	06:19 20:25	20:11 (3) 19:02	07:21 16:46	08:29 15:51	08:57 15:51
31	08:23 16:48	06:57 17:57	05:37 18:57	04:42 21:57	04:42 21:57	21:05 (3) 20:11 (3)	04:34 22:16	21:04 (4) 21:26 (4)	05:17 21:36	21:10 (4) 21:26 (4)	06:19 20:22	20:12 (3) 16:43	07:26 16:43	08:57 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)

Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Rutki - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (239)  
 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	08:33
	15:55	16:53	17:55	20:01	21:04	22:01	22:15	21:32	20:18	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	06:47	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	07:07	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	22:05	22:13	21:26	20:10	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	20:10	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	21:22	20:04	18:43	16:29	15:45
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	20:02	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	04:44	05:39	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	04:46	05:41	06:43	07:44	07:51	08:46
	16:08	17:13	18:15	20:20	21:22	22:11	22:08	21:13	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	06:46	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	22:05	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	08:47	07:49	06:38	06:15	05:06	04:30	04:53	05:51	06:53	07:54	08:01	08:51
	16:17	17:24	18:26	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	04:54	05:53	06:55	07:56	08:03	08:52
	16:19	17:27	18:28	20:33	21:34	22:15	22:01	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	08:06	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	04:58	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	18:13	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	08:55
	16:25	17:33	18:34	20:39	21:40	22:17	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	04:30	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	18:47	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	05:12	06:13	07:15	08:18	08:24	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	08:29	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	20:56	21:53	22:17	21:42	20:31	19:08	17:51	15:53	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	22:17	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		08:58
	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	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme

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		

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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	07:56 17:14 (3)	08:03 16:09
18	04:56 21:59	05:54 20:55	19:53 (5) 20:12 (5)	06:57 19:34	17:11 (3) 17:25 (3)	08:05 16:07
19	04:57 21:57	05:56 20:53	19:52 (5) 20:12 (5)	06:59 19:31	17:10 (3) 17:26 (3)	08:07 16:06
20	04:59 21:56	05:58 20:51	19:50 (5) 20:11 (5)	07:01 19:29	17:09 (3) 17:27 (3)	08:09 16:04
21	05:01 21:54	06:00 20:48	19:50 (5) 20:11 (5)	07:03 19:26	18:20 (4) 18:25 (4)	08:05 17:27 (3)
22	05:02 21:52	06:02 20:46	19:50 (5) 20:11 (5)	07:05 19:23	18:16 (4) 18:28 (4)	18:07 18:05
23	05:04 21:51	06:04 20:43	19:50 (5) 20:11 (5)	07:07 19:21	18:14 (4) 18:30 (4)	08:09 18:02
24	05:06 21:49	06:07 20:40	19:50 (5) 20:09 (5)	07:09 19:18	18:12 (4) 18:31 (4)	08:11 18:00
25	05:08 21:47	06:09 20:38	19:50 (5) 20:07 (5)	07:11 19:15	18:11 (4) 18:31 (4)	07:13 16:57
26	05:09 21:46	06:11 20:35	19:51 (5) 20:05 (5)	07:13 19:13	18:09 (4) 18:31 (4)	07:15 16:55
27	05:11 21:44	06:13 20:33	19:52 (5) 20:02 (5)	07:15 19:10	18:09 (4) 18:31 (4)	07:18 16:53
28	05:13 21:42	06:15 20:30	19:53 (5) 20:00 (5)	07:17 19:07	18:08 (4) 18:31 (4)	07:20 16:50
29	05:15 21:40	06:17 20:28	19:56 (5) 19:57 (5)	07:19 19:04	18:08 (4) 18:31 (4)	07:22 16:48
30	05:17 21:38	06:19 20:25	07:21 19:02	18:08 (4) 18:30 (4)	07:24 16:46	15:51
31	05:19 21:36	06:21 20:22		07:26 16:43		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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Saulieš i - 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	07:31 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 18:15	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 18:15	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 18:10	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 18:15	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 18:15	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 18:15	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 18:15	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme

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.

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

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Senci - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (184)  
 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
	22:15	18	21:25 (5)	21:34	20:20	18:59
2	04:36	21:07 (5)	05:23	06:25	07:25	16:41
	22:15	19	21:26 (5)	21:32	20:17	18:56
3	04:36	21:07 (5)	05:25	06:27	07:27	16:39
	22:14	19	21:26 (5)	21:30	20:14	18:54
4	04:37	21:08 (5)	05:26	06:29	07:29	16:37
	22:14	19	21:27 (5)	21:28	20:12	18:51
5	04:38	21:08 (5)	05:28	06:31	07:31	16:35
	22:13	19	21:27 (5)	21:26	20:09	18:48
6	04:39	21:08 (5)	05:30	06:33	07:33	16:32
	22:12	19	21:27 (5)	21:23	20:07	18:46
7	04:41	21:08 (5)	05:32	06:35	07:35	16:30
	22:11	20	21:28 (5)	21:21	20:04	18:43
8	04:42	21:08 (5)	05:34	06:37	07:37	16:28
	22:11	20	21:28 (5)	21:19	20:01	18:41
9	04:43	21:08 (5)	05:36	06:39	07:39	16:26
	22:10	20	21:28 (5)	21:17	19:58	18:38
10	04:44	21:08 (5)	05:38	06:41	07:41	16:24
	22:09	20	21:28 (5)	21:14	19:56	18:38
11	04:45	21:08 (5)	05:40	06:43	07:43	16:22
	22:08	20	21:28 (5)	21:12	19:53	18:35
12	04:47	21:09 (5)	05:42	19:57 (4)	06:45	18:33
	22:07	19	21:28 (5)	21:10	19:50	18:30
13	04:48	21:09 (5)	05:44	19:54 (4)	06:47	18:25
	22:05	18	21:27 (5)	21:07	19:48	18:22
14	04:50	21:09 (5)	05:46	19:52 (4)	06:49	18:17
	22:04	17	21:26 (5)	21:05	19:45	18:16
15	04:51	21:09 (5)	05:48	19:51 (4)	06:51	18:14
	22:03	16	21:25 (5)	21:03	19:42	18:12
16	04:53	21:09 (5)	05:50	19:50 (4)	06:53	18:09
	22:02	15	21:24 (5)	21:00	19:40	18:07
17	04:54	21:09 (5)	05:52	19:49 (4)	06:55	18:05
	22:00	13	21:22 (5)	20:58	19:37	18:03
18	04:56	21:10 (5)	05:54	19:48 (4)	06:57	18:01
	21:59	11	21:21 (5)	20:55	19:34	17:59
19	04:57	21:10 (5)	05:56	19:48 (4)	06:59	18:27 (3)
	21:57	10	21:20 (5)	20:53	19:31	18:26 (3)
20	04:59	21:12 (5)	05:58	19:47 (4)	07:01	18:25 (3)
	21:56	7	21:19 (5)	20:51	19:29	18:24 (3)
21	05:01	21:12 (5)	06:00	19:46 (4)	07:03	18:23 (3)
	21:54	5	21:17 (5)	20:48	19:26	18:22 (3)
22	05:02	21:13 (5)	06:02	19:46 (4)	07:05	18:21 (3)
	21:52	3	21:16 (5)	20:46	19:23	18:20 (3)
23	05:04		06:05	19:46 (4)	07:07	18:19 (3)
	21:51		20:43	19:46 (4)	07:09	18:18 (3)
24	05:06		06:07	19:46 (4)	07:09	18:17 (3)
	21:49		20:40	19:46 (4)	07:09	18:16 (3)
25	05:08		06:09	19:47 (4)	07:11	18:15 (3)
	21:47		20:38	19:47 (4)	07:11	18:14 (3)
26	05:09		06:11	19:47 (4)	07:13	18:13 (3)
	21:46		20:35	19:48 (4)	07:13	18:12 (3)
27	05:11		06:13	19:48 (4)	07:15	18:11 (3)
	21:44		20:33	19:48 (4)	07:15	18:10 (3)
28	05:13		06:15	19:49 (4)	07:17	18:09 (3)
	21:42		20:30	19:49 (4)	07:17	18:08 (3)
29	05:15		06:17	19:52 (4)	07:19	18:07 (3)
	21:40		20:28	19:52 (4)	07:19	18:06 (3)
30	05:17		06:19	19:57 (4)	07:21	18:05 (3)
	21:38		20:25	19:57 (4)	07:21	18:04 (3)
31	05:19		06:21		19:02	18:03 (3)
	21:36		20:22			18:02 (3)
Potential sun hours	530		470		385	323
Total, worst case		347		255		247
Sun reduction		0,48		0,46		0,46
Oper. time red.		1,00		1,00		1,00
Wind dir. red.		1,00		1,00		1,00
Total reduction		0,48		0,46		0,46
Total, real		166		118		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)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Silini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (172)  
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 17:02	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	08:39 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	04:41 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 22:07	05:42 21:10	06:45 19:50	18:55 (4) 19:02 (4)	07:46 18:30	07:52 16:18
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	18:52 (4) 19:04 (4)	07:48 18:27	07:55 16:16
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	18:50 (4) 19:05 (4)	07:50 18:25	07:57 16:14
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	18:49 (4) 19:06 (4)	07:52 18:22	07:59 16:13
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	18:48 (4) 19:06 (4)	07:54 18:20	08:01 16:11
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	18:47 (4) 19:06 (4)	07:56 18:17	08:03 16:09
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	18:47 (4) 19:04 (4)	07:58 18:15	08:05 16:07
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	18:47 (4) 19:01 (4)	08:00 18:12	08:07 16:06
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	18:47 (4) 18:58 (4)	08:02 18:10	08:09 16:04
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	06:00 20:48	07:03 19:26	18:48 (4) 18:56 (4)	08:05 18:07	08:11 16:03
22	08:38 16:29	07:34 17:37	06:21 18:38	18:05 (4) 18:08 (4)	06:02 20:43	04:57 21:43	05:01 21:52	06:00 20:46	07:03 19:23	18:49 (4) 18:53 (4)	08:05 18:05	08:11 16:01
23	08:36 16:31	07:32 17:40	06:18 18:40	18:09 (4) 18:11 (4)	05:57 20:45	04:53 21:44	05:04 21:51	06:04 20:43	07:07 19:21	18:53 (4) 18:58 (4)	08:09 18:02	08:15 16:00
24	08:35 16:33	07:29 17:42	06:16 18:42	18:01 (4) 18:14 (4)	05:54 20:47	04:52 21:46	05:06 21:49	06:06 20:40	07:09 19:18	18:48 (4) 18:53 (4)	08:11 18:00	08:17 15:58
25	08:33 16:35	07:27 17:44	06:13 18:44	18:00 (4) 18:16 (4)	05:52 20:49	04:50 21:48	05:08 21:47	06:09 20:38	07:11 19:15	18:54 (4) 18:59 (4)	08:13 18:05	08:19 15:57
26	08:32 16:37	07:24 17:46	06:10 18:46	18:16 (4) 18:17 (4)	05:50 20:51	04:49 21:50	05:09 21:46	06:11 20:35	07:13 19:13	18:55 (4) 18:58 (4)	08:15 18:08	08:21 15:56
27	08:30 16:39	07:22 17:49	06:08 18:48	18:00 (4) 18:18 (4)	05:47 20:53	04:47 21:51	05:11 21:44	06:13 20:33	07:15 19:10	18:56 (4) 18:59 (4)	08:17 18:05	08:23 15:54
28	08:28 16:41	07:19 17:51	06:05 18:50	18:04 (4) 18:17 (4)	05:45 20:55	04:46 21:53	05:13 21:42	06:15 20:30	07:17 19:07	18:57 (4) 18:59 (4)	08:19 18:05	08:25 15:48
29	08:26 16:44		07:02 19:52	18:14 (4) 19:00 (4)	05:42 20:57	04:44 21:54	05:15 21:40	06:17 20:28	07:19 19:04	18:58 (4) 18:59 (4)	08:27 18:05	08:31 15:49
30	08:25 16:46		07:00 19:54	19:01 (4) 19:14 (4)	05:40 20:59	04:43 21:56	05:17 21:38	06:19 20:25	07:21 19:02	18:59 (4) 18:59 (4)	08:29 18:05	08:37 15:50
31	08:23 16:48		06:57 19:57	19:03 (4) 19:11 (4)	04:42 21:57	04:42 21:57	05:19 21:36	06:21 20:22		18:59 (4) 18:59 (4)	08:29 18:05	08:37 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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	07:31 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 18:10		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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Stacija "Goba" - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (163)  
 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	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
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 18:05	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 18:05	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	08:25 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Straumes - Shadow Receptor: 1,0 × 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) 22:15	04:35 21:34	05:44 (3) 20:20	06:23 18:59	07:23 16:41	07:29 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) 22:15	04:36 21:32	05:43 (3) 20:23	06:25 18:57	07:25 16:39	07:31 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) 22:14	04:37 21:30	05:43 (3) 20:25	06:27 18:54	07:27 16:37	07:33 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) 22:14	04:38 21:28	05:44 (3) 20:27	06:29 18:51	07:29 16:35	07:35 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) 22:13	04:39 21:26	05:44 (3) 20:29	06:31 18:49	07:31 16:33	07:37 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) 22:12	04:40 21:24	05:44 (3) 20:24	06:33 18:46	07:33 16:31	07:40 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) 22:12	04:41 21:21	05:44 (3) 20:24	06:35 18:43	07:35 16:28	07:42 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	05:39 (3) 22:11	04:42 21:19	05:44 (3) 20:21	06:37 18:41	07:37 16:26	07:44 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) 22:10	04:43 21:17	05:44 (3) 20:21	06:39 18:38	07:40 16:24	07:46 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	06:09 (3) 22:09	04:44 21:15	05:44 (3) 20:21	06:41 18:35	07:42 16:22	07:48 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) 22:08	04:46 21:12	05:45 (3) 20:21	06:43 18:33	07:44 16:20	07:50 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	06:09 (3) 22:07	04:47 21:10	05:45 (3) 20:21	06:45 18:30	07:46 16:18	07:53 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) 22:05	04:48 21:08	05:45 (3) 20:21	06:47 18:28	07:48 16:17	07:55 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) 22:04	04:50 21:05	05:45 (3) 20:21	06:49 18:25	07:50 16:15	07:57 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) 22:03	04:51 21:03	05:46 (3) 20:21	06:51 18:23	07:52 16:13	08:00 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	05:40 (3) 22:02	04:53 21:00	05:45 (3) 20:21	06:53 18:20	07:54 16:11	08:01 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	05:40 (3) 22:00	04:54 21:08	05:46 (3) 20:21	06:55 18:17	07:56 16:09	08:03 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) 21:59	04:56 21:06	05:46 (3) 20:21	06:57 18:15	07:58 16:08	08:05 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) 21:57	04:58 21:03	05:46 (3) 20:21	06:59 18:12	08:01 16:06	08:07 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) 21:56	04:59 21:05	05:47 (3) 20:21	07:01 18:10	08:03 16:04	08:09 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) 21:54	05:01 21:08	05:47 (3) 20:21	07:03 18:07	08:05 16:03	08:12 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) 21:53	05:03 21:10	05:48 (3) 20:21	07:05 18:05	08:07 16:01	08:14 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) 21:51	05:04 21:15	05:49 (3) 20:21	07:07 18:03	08:09 16:00	08:16 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) 21:49	05:06 21:13	05:49 (3) 20:21	07:09 18:00	08:11 15:58	08:18 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) 21:47	05:08 21:10	05:50 (3) 20:21	07:11 18:15	07:13 15:57	08:19 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) 21:46	05:10 21:11	05:50 (3) 20:21	07:13 18:13	07:16 15:56	08:21 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) 21:44	05:12 21:14	05:52 (3) 20:21	07:15 18:10	07:18 15:55	08:23 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) 21:42	05:13 21:15	05:54 (3) 20:21	07:17 19:07	07:20 16:51	08:25 15:49
29	08:26 16:44	07:17 19:53	06:02 20:57	05:43 21:55	04:45 21:53	04:34 22:16	05:43 (3) 21:40	05:15 21:12	05:56 (3) 20:21	07:19 19:05	07:22 16:48	08:27 15:52
30	08:25 16:46	07:19 19:55	06:00 20:59	05:40 21:56	04:43 21:56	04:34 22:16	05:43 (3) 21:38	05:17 21:13	05:59 (3) 20:21	07:21 19:02	07:24 16:46	08:29 15:51
31	08:23 16:48	07:17 19:57	06:00 20:59	05:40 21:56	04:43 21:56	04:34 22:16	05:43 (3) 21:38	05:17 21:13	05:59 (3) 20:21	07:21 19:02	07:24 16:46	08:29 15:51
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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme

Assumptions for shadow calculations

Shadow receptor: Strautmali - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (193)

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) 06:23	22 24	06:59 (3) 07:23 (3)	07:29 18:59	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	04:36 22:15	05:23 21:32	05:59 (4) 06:20 (4)	06:25 20:17	23 23	06:58 (3) 07:21 (3)	07:31 18:57	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	05:59 (4) 06:19 (4)	06:27 20:15	21 21	06:59 (3) 07:20 (3)	07:33 18:54	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	06:00 (4) 06:18 (4)	06:29 20:12	18 18	07:00 (3) 07:18 (3)	07:29 18:51	08:36 15:47	
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) 06:17 (4)	06:31 20:09	15 15	07:01 (3) 07:16 (3)	07:31 18:49	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	05:55 (4) 06:05 (4)	04:36 22:06	05:31 21:24	06:04 (4) 06:16 (4)	06:33 20:07	15 11	07:03 (3) 07:14 (3)	07:33 18:46	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	05:53 (4) 06:06 (4)	04:35 22:07	05:33 21:21	06:05 (4) 06:14 (4)	06:35 20:04		07:35 07:42	07:42 18:43	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	05:51 (4) 06:07 (4)	04:34 22:08	05:35 21:19	06:07 (4) 06:10 (4)	06:37 20:01		07:37 07:40	07:44 18:41	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	05:49 (4) 06:08 (4)	04:34 22:09	05:37 21:17	06:39 19:59	06:39 20:01		07:40 07:42	07:46 18:38	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	05:48 (4) 06:09 (4)	04:33 22:10	05:39 21:15	06:41 19:56	06:41 20:01		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	05:48 (4) 06:09 (4)	04:32 22:08	05:41 21:12	06:43 19:53	06:43 20:01		07:44 18:33	07:50 16:20	08:46 15:44	
12	08:51 16:10	07:58 18:17	06:48 19:22	06:25 20:22	05:14 21:24	05:48 (4) 06:10 (4)	04:32 22:12	05:43 21:10	06:45 19:51	06:45 20:01		07:46 18:30	07:53 16:18	08:47 15:43	
13	08:50 16:11	07:56 18:19	06:45 19:24	06:23 20:24	05:12 21:26	05:48 (4) 06:10 (4)	04:31 22:12	05:45 21:08	06:47 19:48	06:47 20:01		07:48 18:28	07:55 16:17	08:48 15:43	
14	08:49 16:13	07:53 18:21	06:43 19:26	06:20 20:26	05:10 21:28	05:47 (4) 06:10 (4)	04:31 22:13	05:47 21:05	06:49 19:45	06:49 20:01		07:50 18:25	07:57 16:15	08:49 15:43	
15	08:47 16:15	07:51 18:23	06:40 19:28	06:17 20:28	05:08 21:30	05:47 (4) 06:10 (4)	04:31 22:14	05:49 21:03	06:51 19:43	06:51 20:01		07:52 18:23	07:59 16:13	08:50 15:43	
16	08:46 16:17	07:49 18:25	06:37 19:30	06:15 20:30	05:06 21:32	05:48 (4) 06:10 (4)	04:30 22:14	04:53 21:01	06:05 (4) 06:11 (4)	05:51 21:01		06:53 18:20	07:54 16:11	08:51 15:43	
17	08:45 16:19	07:46 18:27	06:35 19:32	06:12 20:32	05:04 21:34	05:48 (4) 06:10 (4)	04:30 22:15	04:54 22:00	06:04 (4) 06:14 (4)	05:53 20:58		06:55 18:17	08:03 16:09	08:52 15:43	
18	08:44 16:21	07:44 18:30	06:32 19:34	06:10 20:34	05:02 21:36	05:47 (4) 06:09 (4)	04:30 22:16	04:56 21:59	06:02 (4) 06:15 (4)	05:55 20:56		06:57 18:15	08:05 16:08	08:53 15:43	
19	08:42 16:23	07:42 18:32	06:29 19:37	06:07 20:37	05:00 21:37	05:48 (4) 06:10 (4)	04:30 22:16	04:59 21:57	06:01 (4) 06:15 (4)	05:59 20:53		06:59 18:12	08:07 16:06	08:54 15:43	
20	08:41 16:25	07:39 18:33	06:27 19:39	06:05 20:39	04:59 21:39	05:48 (4) 06:09 (4)	04:30 22:16	04:59 21:56	06:01 (4) 06:17 (4)	05:59 20:51		07:01 18:10	08:10 16:04	08:54 15:44	
21	08:40 16:27	07:37 18:36	06:24 19:41	06:02 20:41	04:57 21:41	05:49 (4) 06:09 (4)	04:30 22:17	05:01 21:54	06:00 (4) 06:17 (4)	07:03 (3) 20:48		07:03 18:07	08:12 16:03	08:55 15:44	
22	08:38 16:29	07:34 18:38	06:21 19:43	06:00 20:43	04:55 21:43	05:49 (4) 06:08 (4)	04:30 22:17	05:03 21:53	05:59 (4) 06:18 (4)	06:03 20:46	10 15	07:06 (3) 07:21 (3)	07:05 18:05	08:14 16:01	08:56 15:44
23	08:37 16:31	07:32 18:40	06:19 19:45	05:57 20:45	04:53 21:45	05:51 (4) 06:07 (4)	04:31 22:17	05:04 21:51	06:05 (4) 06:19 (4)	07:03 (3) 20:43	15 19	07:07 (3) 07:22 (3)	07:07 18:03	08:16 16:00	08:56 15:45
24	08:35 16:33	07:29 18:42	06:16 19:47	05:55 20:47	04:52 21:46	05:51 (4) 06:06 (4)	04:31 22:17	05:06 21:49	06:07 (4) 06:19 (4)	07:09 20:41	21 21	07:02 (3) 07:23 (3)	07:09 18:00	08:18 15:58	08:56 15:46
25	08:33 16:35	07:27 18:44	06:13 19:49	05:52 20:49	04:50 21:48	05:52 (4) 06:06 (4)	04:31 22:17	05:08 21:47	05:59 (4) 06:20 (4)	06:09 20:38	22 22	07:01 (3) 07:23 (3)	07:11 18:03	08:20 16:58	08:57 15:46
26	08:32 16:37	07:24 18:46	06:10 19:51	05:50 20:51	04:49 21:50	05:54 (4) 06:05 (4)	04:32 22:17	05:10 21:46	06:11 (4) 06:20 (4)	06:11 20:36	22 24	06:58 (4) 07:00 (3)	06:11 18:03	08:21 16:55	08:57 15:47
27	08:30 16:40	07:22 18:48	06:08 19:53	05:47 20:53	04:47 21:51	05:56 (4) 06:03 (4)	04:32 22:17	05:12 21:44	06:13 (4) 06:20 (4)	06:13 20:33	24 24	07:00 (3) 07:24 (3)	07:15 18:03	08:23 16:53	08:57 15:48
28	08:28 16:42	07:19 18:51	06:05 19:55	05:45 20:55	04:46 21:53	05:58 (4) 06:04 (4)	04:33 22:17	05:13 21:42	06:15 (4) 06:21 (4)	06:15 20:30	25 25	06:59 (3) 07:24 (3)	07:17 18:03	08:25 16:51	08:57 15:49
29	08:27 16:44	07:02 19:53	05:43 20:57	05:43 21:55	04:45 21:55	05:58 (4) 06:04 (4)	04:34 22:16	05:15 21:40	06:17 (4) 06:21 (4)	06:17 20:28	25 25	06:59 (3) 07:24 (3)	07:19 18:03	08:27 16:48	08:57 15:50
30	08:25 16:46	07:00 19:55	05:40 21:00	05:40 21:56	04:43 21:56	05:58 (4) 06:04 (4)	04:34 22:16	05:17 21:38	06:19 (4) 06:20 (4)	07:21 20:25	25 25	06:59 (3) 07:24 (3)	07:21 18:03	08:29 16:46	08:57 15:51
31	08:23 16:48	06:57 19:57	05:37 21:00	05:37 21:58	04:42 21:58	05:59 (4) 06:05 (4)	04:34 22:16	05:19 21:36	06:21 (4) 06:20 (4)	07:23 (3) 20:23	24 24	06:59 (3) 07:23 (3)	07:26 18:03	08:29 16:44	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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Strautmali - 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
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 16:20	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 18:05	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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Svareni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (214)  
 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	08:58 15:53	08:21 16:51	07:17 17:53	06:54 19:59	18:44 (1) 19:02 (1)	04:41 22:00
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	18:46 (1) 19:00 (1)	04:40 22:01
3	08:57 15:56	08:17 16:55	07:12 17:58	06:49 20:03	18:49 (1) 18:55 (1)	04:39 22:02
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
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
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
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
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
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
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
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
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
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
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
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
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
17	08:46 16:19	07:47 17:27	06:35 18:28	06:12 17:55 (1) 17:59 (1)	05:04 21:34	04:30 22:16
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 18:01 (1) 20:35	05:02 21:36	04:30 22:16
19	08:43 16:23	07:42 17:31	06:29 18:32	06:07 17:48 (1) 18:04 (1)	05:00 21:38	04:30 22:16
20	08:42 16:25	07:39 17:33	06:27 18:34	06:05 17:46 (1) 18:06 (1)	04:58 21:40	04:30 22:17
21	08:40 16:27	07:37 17:36	06:24 18:36	06:02 17:44 (1) 18:08 (1)	04:57 21:42	04:30 22:17
22	08:39 16:29	07:34 17:38	06:21 18:38	06:00 17:44 (1) 18:09 (1)	04:55 21:43	04:30 22:17
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 17:43 (1) 18:09 (1)	04:53 21:45	04:30 22:17
24	08:35 16:33	07:30 17:42	06:16 18:42	05:55 17:42 (1) 18:09 (1)	04:52 21:47	04:31 22:17
25	08:34 16:35	07:27 17:44	06:13 18:44	05:52 17:41 (1) 18:08 (1)	04:50 21:49	04:31 22:17
26	08:32 16:37	07:25 17:47	06:11 18:47	05:50 17:41 (1) 18:09 (1)	04:49 21:50	04:32 22:17
27	08:30 16:40	07:22 17:49	06:08 18:49	05:47 17:41 (1) 18:08 (1)	04:47 21:52	04:32 22:17
28	08:29 16:42	07:19 17:51	06:05 18:51	05:45 17:41 (1) 18:07 (1)	04:46 21:53	04:33 22:17
29	08:27 16:44		07:03 19:03	05:43 18:42 (1) 19:07 (1)	04:44 21:55	04:33 22:17
30	08:25 16:46		07:00 19:55	05:40 18:42 (1) 19:05 (1)	04:43 21:57	04:34 22:16
31	08:23 16:48		06:57 19:57	05:38 18:42 (1) 19:03 (1)	04:42 21:58	04:34 22:16
Potential sun hours	234	266	366	426	509	530
Total, worst case			330	38	270	1217
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			133	18	159	693

Table 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Svareni - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (214)  
 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 41	20:35 (2) 21:16 (2)	05:21 21:35	06:23 20:20	07:23 18:59	07:29 16:41
2	04:36 22:16 41	20:34 (2) 21:15 (2)	05:23 21:32	06:25 20:18	07:25 18:57	07:31 16:39
3	04:36 22:15 40	20:35 (2) 21:15 (2)	05:25 21:30	06:27 20:15	07:27 18:54	07:33 16:37
4	04:37 22:14 40	20:35 (2) 21:15 (2)	05:27 21:28	06:29 20:12	07:29 18:51	07:36 16:35
5	04:38 22:14 39	20:36 (2) 21:15 (2)	05:29 21:26	06:31 20:10	07:31 18:49	07:38 16:33
6	04:39 22:13 39	20:36 (2) 21:15 (2)	05:31 21:24	06:33 20:07	07:34 18:46	07:40 16:30
7	04:41 22:12 38	20:37 (2) 21:15 (2)	05:33 21:22	06:35 20:04	07:36 18:43	07:42 16:28
8	04:42 22:11 38	20:37 (2) 21:15 (2)	05:35 21:20	06:37 20:02	07:38 18:41	07:44 16:26
9	04:43 22:10 37	20:38 (2) 21:15 (2)	05:37 21:17	06:39 19:59	18:43 (1) 18:49 (1)	07:46 16:24
10	04:44 22:09 36	20:38 (2) 21:14 (2)	05:39 21:15	06:41 19:56	18:39 (1) 18:53 (1)	07:49 16:22
11	04:46 22:08 36	20:39 (2) 21:15 (2)	05:41 21:13	06:43 19:54	18:37 (1) 18:54 (1)	07:51 16:20
12	04:47 22:07 34	20:40 (2) 21:14 (2)	05:43 21:10	06:45 19:51	18:35 (1) 18:56 (1)	07:53 16:18
13	04:48 22:06 34	20:40 (2) 21:14 (2)	05:45 21:08	06:47 19:48	18:33 (1) 18:56 (1)	07:55 16:16
14	04:50 22:05 32	20:41 (2) 21:13 (2)	05:47 21:06	06:49 19:45	18:32 (1) 18:57 (1)	07:57 16:15
15	04:51 22:03 31	20:42 (2) 21:13 (2)	05:49 21:03	06:51 19:43	18:31 (1) 18:57 (1)	07:59 16:13
16	04:53 22:02 30	20:42 (2) 21:12 (2)	05:51 21:01	06:53 19:40	18:30 (1) 18:57 (1)	08:02 16:11
17	04:54 22:01 28	20:43 (2) 21:11 (2)	05:53 20:58	06:55 19:37	18:30 (1) 18:57 (1)	08:04 16:09
18	04:56 21:59 25	20:45 (2) 21:10 (2)	05:55 20:56	06:57 19:35	18:29 (1) 18:57 (1)	08:06 16:08
19	04:57 21:58 23	20:46 (2) 21:09 (2)	05:57 20:53	06:59 19:32	18:29 (1) 18:56 (1)	08:08 16:06
20	04:59 21:56 20	20:48 (2) 21:08 (2)	05:59 20:51	07:01 19:29	18:29 (1) 18:56 (1)	08:10 16:04
21	05:01 21:55 17	20:49 (2) 21:06 (2)	06:01 20:49	07:03 19:26	18:29 (1) 18:55 (1)	08:12 16:03
22	05:02 21:53 11	20:52 (2) 21:03 (2)	06:03 20:46	07:05 19:24	18:30 (1) 18:54 (1)	08:14 16:01
23	05:04 21:51	06:05 20:43	07:07 19:21	18:30 (1) 18:51 (1)	08:09 18:03	08:16 16:00
24	05:06 21:50	06:07 20:41	07:09 19:18	18:31 (1) 18:48 (1)	08:12 18:00	08:18 15:58
25	05:08 21:48	06:09 20:38	07:11 19:16	18:33 (1) 18:46 (1)	07:14 16:58	08:20 15:57
26	05:10 21:46	06:11 20:36	07:13 19:13	18:36 (1) 18:43 (1)	07:16 16:55	08:22 15:56
27	05:11 21:44	06:13 20:33	07:15 19:10	18:36 (1) 16:53	07:18 15:54	08:24 15:48
28	05:13 21:42	06:15 20:31	07:17 19:07	18:36 (1) 16:51	07:20 15:53	08:26 15:49
29	05:15 21:40	06:17 20:28	07:19 19:05	18:36 (1) 16:48	07:22 15:52	08:27 15:49
30	05:17 21:39	06:19 20:25	07:21 19:02	18:36 (1) 16:46	07:25 15:51	08:29 15:51
31	05:19 21:37	06:21 20:23	07:23 19:00	18:36 (1) 16:44	07:27 15:50	08:31 15:52
Potential sun hours	530	470	385	323	247	215
Total, worst case	710		376			
Sun reduction	0,48		0,46			
Oper. time red.	1,00		1,00			
Wind dir. red.	1,00		1,00			
Total reduction	0,48		0,46			
Total, real	339		174			

Table 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 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	21 06:18 (3)	05:57 (3) 20:20	06:23 18:59	07:23 16:41	07:29 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	19 06:17 (3)	05:58 (3) 20:17	06:25 18:57	07:25 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	18 06:16 (3)	05:58 (3) 20:15	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	04:38 22:03	04:38 22:14	05:27 21:28	15 06:15 (3)	06:00 (3) 20:12	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	12 06:14 (3)	06:02 (3) 20:09	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	05:55 (3) 4	04:36 22:06	04:40 22:12	05:31 21:24	06:04 (3) 8	06:33 20:07	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	05:53 (3) 9	04:35 22:07	04:41 22:12	05:33 21:21	06:12 (3)	06:35 20:04	07:35 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	05:51 (3) 13	04:34 22:08	04:42 22:11	05:35 21:19		06:37 20:01	07:37 16:41	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	05:49 (3) 16	04:34 22:09	04:43 22:10	05:37 21:17		06:39 19:59	07:40 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	05:47 (3) 19	04:33 22:10	04:44 22:09	05:39 21:15		06:41 19:56	07:42 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	05:46 (3) 20	04:32 22:11	04:46 22:08	05:41 21:12		06:43 19:53	07:44 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	05:46 (3) 22	04:32 22:07	04:47 22:07	2 06:07 (3)	05:43 21:10	06:45 19:51	07:46 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	05:46 (3) 22	04:31 22:12	04:48 22:05	8 06:10 (3)	05:45 21:08	06:47 19:48	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	05:45 (3) 23	04:31 22:13	04:50 22:04	11 06:11 (3)	05:47 21:05	06:49 19:45	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	05:45 (3) 23	04:31 22:14	04:51 22:03	13 06:13 (3)	05:49 21:03	06:51 19:43	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	05:45 (3) 24	04:30 22:14	04:53 22:02	15 06:14 (3)	05:51 21:00	06:53 19:40	07:54 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	05:45 (3) 23	04:30 22:15	04:54 22:00	16 06:15 (3)	05:53 20:58	06:55 19:37	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	05:45 (3) 23	04:30 22:15	04:56 21:59	18 06:16 (3)	05:55 20:56	06:57 19:34	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	05:45 (3) 23	04:30 22:16	04:58 21:57	18 06:17 (3)	05:57 20:53	06:59 19:32	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	04:59 21:39	05:45 (3) 23	04:30 22:16	04:59 21:56	19 06:17 (3)	05:59 20:51	07:01 19:29	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	04:57 21:41	05:46 (3) 22	04:30 22:17	05:01 21:54	20 06:17 (3)	06:01 20:48	07:03 19:26	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	04:55 21:43	05:46 (3) 21	04:30 22:17	05:03 21:53	21 06:18 (3)	06:03 20:46	07:05 19:24	08:07 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	05:47 (3) 20	04:31 22:17	05:04 21:51	22 06:19 (3)	06:05 20:43	07:07 19:21	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	04:52 21:46	05:47 (3) 19	04:31 22:17	05:06 21:49	23 06:18 (3)	06:07 20:41	07:09 19:18	08:11 16:00	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	05:48 (3) 18	04:31 22:17	05:08 21:47	23 06:19 (3)	06:09 20:38	07:11 16:58	07:13 15:57	08:19 15:46
26	08:32 16:37	07:24 17:47	06:11 18:46	05:50 20:51	04:49 21:50	05:49 (3) 17	04:32 22:17	05:10 21:46	23 06:19 (3)	06:11 20:36	07:13 16:55	07:16 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	05:50 (3) 15	04:32 22:17	05:12 21:44	24 06:19 (3)	06:13 20:33	07:15 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	05:51 (3) 14	04:33 22:17	05:13 21:42	23 06:19 (3)	06:15 20:30	07:17 16:51	08:25 15:53	08:57 15:49
29	08:27 16:44		07:02 19:53	05:43 20:57	04:45 21:55	05:51 (3) 12	04:34 22:16	05:15 21:40	23 06:19 (3)	06:17 20:28	07:19 16:48	08:27 15:52	08:57 15:50
30	08:25 16:46		07:00 19:55	05:40 21:00	04:43 21:56	05:53 (3) 9	04:34 22:16	05:17 21:38	22 06:18 (3)	06:19 20:25	07:21 16:46	08:29 15:51	08:57 15:51
31	08:23 16:48		06:57 19:57		04:42 21:58	05:55 (3) 5		05:19 21:36	22 06:18 (3)	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
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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	08:22 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 18:15		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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 15:53	08:21 16:50	07:17 17:53	06:54 19:59	05:38 21:01	04:41 21:59	04:35 22:16	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:30 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	08:57 15:55	08:17 16:55	07:11 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:14	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 16:00	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	04:42 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 19:59	07:39 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:12	06:30 20:18	05:18 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 15:44
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	07:44 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
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	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	08:49 16:13	07:53 17:20	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	07:49 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 15:43
18	08:44 16:21	07:44 17:29	06:32 18:29	06:09 20:34	05:02 21:36	04:30 22:15	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 16:23	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	08:03 18:10	08:09 16:04	08:54 15:43
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	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 20:41	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	05:08 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 17:49	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 18:02	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	04:32 22:17	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 21:55	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		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 15:50
31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:22		07:26 18:00		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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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	07:31 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	07:49 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	06:45 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 22:05	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	06:37 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 21:39	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 18:47	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 19:07	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 22:17	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 18:05	07:27 16:44	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Virši - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (207)  
 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	21:02	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
	15:55	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	22:14	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	08:36
	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	07:37	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	22:05	22:12	21:24	20:07	18:46	16:31	15:46
7	08:55	08:09	07:01	06:38	05:24	04:35	04:41	05:33	06:35	07:35	07:42	08:40
	16:02	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	06:59	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	07:40	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	06:31	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	18:35	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	08:46
	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	16:18	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	22:12	22:05	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	08:47	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	19:43	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	22:14	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	21:36	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	08:01	08:07	08:54
	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	17:36	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	04:31	05:03	06:03	07:05	08:07	08:14	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	04:54	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	08:17	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	08:33	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	06:11	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	20:36	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	18:48	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	18:51	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		21:58		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)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

flickering\_Vestas\_V162\_Stelpe1\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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
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	08:08 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	07:42 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 22:07	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 22:10	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 22:07	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	04:30 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 22:16	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 18:05	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 18:04	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 18:02	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 18:02	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 18:16	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	05:48 20:53	04:48 21:52	04:32 22:17	05:12 21:44	06:13 20:33	07:15 19:10	08:18 18:10	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	05:14 21:42	06:15 20:31	07:17 19:08	08:20 18:08	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 18:44		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

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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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme

Assumptions for shadow calculations

Shadow receptor: Zarini - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (183)

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 20:04 (3)	07:48 18:27	07:55 16:15	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 19:52 (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	19 20:55 (4) 21:14 (4)	04:53 22:01	23 20:59 (4) 21:22 (4)	05:50 21:00	06:53 20:09 (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 20:56	06:57 20:10 (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	18 20:56 (4) 21:14 (4)	04:57 21:57	20 20:59 (4) 21:20 (4)	05:55 20:53	06:59 20:10 (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 20:10 (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 20:09 (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 20:09 (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 20:09 (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 20:08 (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 20:07 (3)	08:19 18:15	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 20:04 (3)	08:21 18:13	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 20:02 (3)	08:23 18:10	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 20:00 (3)	08:25 18:07	08:57 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	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 20:00 (3)	08:27 18:04	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 20:02 (3)	08:29 18:02	08:57 15:51	08:57 15:50
31	08:23 16:48	06:57 17:57	05:37 18:57	05:37 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 20:22	08:30 18:02	08:57 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	602	530	470	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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 18:00	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 18:00	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	08:24 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 18:00		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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Ziemeļnieki - Shadow Receptor:  $1,0 \times 1,0$  Azimuth:  $3,1^\circ$  Slope:  $90,0^\circ$  (180)  
 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
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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
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31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:22		07:26 18:43		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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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
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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	04:30 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
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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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme Shadow receptor: Zviedri - Shadow Receptor: 1,0 × 1,0 Azimuth: 3,1° Slope: 90,0° (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
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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)	Sun set (hh:mm)	Minutes 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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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)	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
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 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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.

	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\_kumulativa\_ietekme

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

07.04.2025 14:12/4.1.254

## SHADOW - Calendar

Calculation: Flickering\_Vestas\_V162\_kumulativa\_ietekme 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
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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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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		