

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 1 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (37)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January		February		March	April		May		June	
1	09:00	09:55-10:23/28	08:21	09:34-09:59/25	07:13	06:48		05:28		04:27	05:04-05:25/21
	15:39		16:40	10:03-10:45/42	17:46	19:55		21:01		22:03	
2	09:00	09:56-10:25/29	08:19	09:35-09:58/23	07:11	06:45		05:25		04:26	05:04-05:26/22
	15:41		16:42	10:04-10:45/41	17:48	19:57		21:04		22:04	
3	09:00	09:42-09:44/2	08:17	09:37-09:56/19	07:08	06:42		05:23		04:24	05:04-05:26/22
	15:42	09:56-10:26/30	16:45	10:05-10:45/40	17:50	19:59		21:06		22:06	
4	08:59	09:41-09:46/5	08:15	09:41-09:45/4	07:05	06:39		05:20		04:23	05:05-05:27/22
	15:43	09:56-10:27/31	16:47	10:05-10:44/39	17:53	20:02		21:08		22:07	
5	08:59	09:40-09:47/7	08:13	10:07-10:43/36	07:03	06:37		05:18		04:22	05:05-05:27/22
	15:45	09:57-10:28/31	16:49		17:55	20:04		21:10		22:08	
6	08:58	09:39-09:49/10	08:10	10:08-10:43/35	07:00	06:34		05:16		04:21	05:05-05:27/22
	15:46	09:58-10:29/31	16:52		17:57	20:06		21:12		22:10	
7	08:57	09:38-09:50/12	08:08	10:08-10:42/34	06:57	06:31		05:13		04:20	05:05-05:26/21
	15:48	09:58-10:30/32	16:54		18:00	20:08		21:14		22:11	
8	08:57	09:37-09:51/14	08:06	10:10-10:41/31	06:55	06:28		05:11		04:19	05:06-05:27/21
	15:50	09:58-10:31/33	16:56		18:02	20:10		21:17		22:12	
9	08:56	09:36-09:53/17	08:04	10:11-10:39/28	06:52	06:26		05:09		04:19	05:06-05:27/21
	15:51	09:59-10:33/34	16:59		18:04	20:13		21:19		22:13	
10	08:55	09:35-09:54/19	08:01	10:13-10:38/25	06:49	06:23		05:06		04:18	05:07-05:27/20
	15:53	10:00-10:34/34	17:01	16:25-16:27/2	18:06	20:15		21:21		22:14	
11	08:54	09:34-09:55/21	07:59	10:15-10:35/20	06:46	06:20		05:04		04:17	05:07-05:27/20
	15:55	10:01-10:35/34	17:04	16:21-16:30/9	18:09	20:17		21:23		22:15	
12	08:53	09:32-09:56/24	07:57	10:18-10:31/13	06:44	06:17	19:47-19:49/2	05:02		04:17	05:07-05:27/20
	15:57	10:01-10:35/34	17:06	16:19-16:32/13	18:11	20:19		21:25		22:16	
13	08:52	09:31-09:57/26	07:54	16:18-16:35/17	06:41	06:15	19:44-19:51/7	05:00		04:16	05:07-05:27/20
	15:59	10:02-10:37/35	17:08		18:13	20:21		21:27		22:17	
14	08:51	09:29-09:58/29	07:52	16:17-16:38/21	06:38	06:12	19:43-19:52/9	04:58		04:16	05:08-05:27/19
	16:00	10:02-10:37/35	17:11		18:15	20:24		21:29		22:18	
15	08:50	09:28-09:59/31	07:49	16:17-16:39/22	06:35	06:09	19:42-19:55/13	04:56		04:15	05:08-05:27/19
	16:02	10:02-10:39/37	17:13		18:17	20:26		21:31		22:19	
16	08:48	09:27-09:59/32	07:47	16:16-16:39/23	06:32	06:06	19:41-19:57/16	04:54		04:15	05:09-05:28/19
	16:04	10:02-10:39/37	17:15		18:20	20:28		21:33		22:19	
17	08:47	09:27-10:00/33	07:44	16:15-16:39/24	06:30	06:04	19:42-19:59/17	04:52		04:15	05:09-05:28/19
	16:06	10:01-10:40/39	17:18		18:22	20:30		21:35		22:20	
18	08:46	09:28-10:01/33	07:42	16:15-16:40/25	06:27	06:01	19:41-20:00/19	04:50		04:15	05:09-05:28/19
	16:09	10:02-10:41/39	17:20		18:24	20:33		21:38		22:20	
19	08:44	09:27-10:01/34	07:39	16:15-16:40/25	06:24	05:58	19:40-19:59/19	04:48		04:15	05:09-05:28/19
	16:11	10:02-10:42/40	17:23		18:26	20:35		21:39		22:21	
20	08:43	09:27-10:42/75	07:37	16:15-16:39/24	06:21	05:56	19:41-19:59/18	04:46		04:15	05:10-05:28/18
	16:13		17:25		18:29	20:37		21:41		22:21	
21	08:41	09:27-10:43/76	07:34	16:15-16:40/25	06:18	05:53	19:41-19:58/17	04:44	05:18-05:20/2	04:15	05:10-05:28/18
	16:15		17:27		18:31	20:39		21:43		22:21	
22	08:39	09:27-10:43/76	07:32	16:16-16:39/23	06:16	05:51	19:43-19:57/14	04:42	05:16-05:21/5	04:15	05:10-05:28/18
	16:17		17:30		18:33	20:41		21:45		22:22	
23	08:38	09:28-10:44/76	07:29	16:16-16:38/22	06:13	05:48	19:43-19:55/12	04:40	05:15-05:22/7	04:15	05:10-05:29/19
	16:19		17:32		18:35	20:44		21:47		22:22	
24	08:36	09:28-10:44/76	07:27	16:17-16:36/19	06:10	05:45	19:47-19:52/5	04:39	05:13-05:22/9	04:16	05:10-05:29/19
	16:22		17:34		18:37	20:46		21:49		22:22	
25	08:34	09:28-10:44/76	07:24	16:19-16:35/16	06:07	05:43	04:37	05:12-05:23/11	04:16		05:10-05:29/19
	16:24		17:37		18:40	20:48		21:51		22:22	
26	08:33	09:29-10:45/76	07:21	16:20-16:33/13	06:04	05:40		04:35	05:10-05:23/13	04:16	05:11-05:30/19
	16:26		17:39		18:42	20:50		21:53		22:22	
27	08:31	09:30-10:45/75	07:19	16:24-16:28/4	06:02	05:38		04:34	05:09-05:24/15	04:17	05:10-05:30/20
	16:28		17:41		18:44	20:52		21:54		22:21	
28	08:29	09:30-10:46/76	07:16		05:59	05:35		04:32	05:08-05:25/17	04:18	05:11-05:30/19
	16:31		17:44		18:46	20:55		21:56		22:21	
29	08:27	09:30-10:45/75			06:56	05:33		04:31	05:07-05:25/18	04:18	05:11-05:31/20
	16:33				19:48	20:57		21:58		22:21	
30	08:25	09:31-10:02/31			06:53	05:30		04:29	05:06-05:26/20	04:19	05:11-05:31/20
	16:35	10:03-10:45/42			19:51	20:59		21:59		22:20	
31	08:23	09:33-10:01/28			06:50			04:28	05:04-05:25/21		
	16:38	10:04-10:45/41			19:53			22:01			
Potential sun hours	227		262		365	429		515		539	
Sum of minutes with flicker	1891		782		0	168		138		597	

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

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

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Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	July		August		September		October		November		December	
1	04:20	05:11-05:31/20	05:09	21:35	06:15	07:18	07:27	09:42-10:07/25	08:33	09:16-09:38/22		
	22:20		21:35		20:17	18:53	16:32		15:37	09:43-10:16/33		
2	04:21	05:11-05:32/21	05:11	21:33	06:17	07:21	07:30	09:40-10:09/29	08:35	09:18-09:37/19		
	22:19		21:33		20:15	18:51	16:30		15:36	09:43-10:17/34		
3	04:22	05:12-05:32/20	05:13	21:31	06:19	07:23	07:32	09:40-10:11/31	08:36	09:20-09:37/17		
	22:19		21:31		20:12	18:48	16:27		15:35	09:43-10:17/34		
4	04:23	05:12-05:32/20	05:15	21:29	06:21	07:25	07:34	09:38-10:11/33	08:38	09:22-09:37/15		
	22:18		21:29		20:09	18:45	16:25		15:34	09:43-10:17/34		
5	04:24	05:12-05:33/21	05:17	21:26	06:23	07:27	07:37	09:37-10:13/36	08:40	09:24-09:36/12		
	22:17		21:26		20:06	18:42	16:23		15:33	09:44-10:15/31		
6	04:25	05:12-05:33/21	05:19	21:24	06:25	07:29	07:39	09:36-10:13/37	08:41	09:25-09:35/10		
	22:17		21:24		20:03	18:39	16:20		15:33	09:43-10:15/32		
7	04:26	05:12-05:33/21	05:22	21:22	06:28	07:31	07:41	09:11-09:16/5	08:43	09:27-09:35/8		
	22:16		21:22		20:01	18:37	16:18	09:36-10:14/38	15:32	09:44-10:15/31		
8	04:27	05:12-05:33/21	05:24	21:19	06:30	07:34	07:44	09:07-09:26/19	08:45	09:29-09:34/5		
	22:15		21:19		19:58	18:34	16:16	09:35-10:15/40	15:31	09:44-10:15/31		
9	04:29	05:12-05:33/21	05:26	21:17	06:32	07:36	07:46	09:06-09:29/23	08:46	09:30-09:33/3		
	22:14		21:17		19:55	18:31	16:14	09:35-10:16/41	15:31	09:45-10:14/29		
10	04:30	05:12-05:33/21	05:28	21:15	06:34	07:38	07:48	09:05-09:31/26	08:47	09:45-10:14/29		
	22:13		21:15		19:52	18:29	16:12	09:35-10:16/41	15:30			
11	04:31	05:13-05:34/21	05:30	21:12	06:36	07:40	07:51	09:03-09:32/29	08:49	09:46-10:14/28		
	22:11		21:12		19:50	18:26	16:10	09:34-10:16/42	15:30			
12	04:33	05:13-05:34/21	05:32	21:10	06:38	07:42	07:53	09:03-09:33/30	08:50	09:46-10:14/28		
	22:10		21:10		19:47	18:23	16:08	09:35-10:17/42	15:29			
13	04:34	05:13-05:33/20	05:34	21:07	06:40	07:44	07:55	09:02-10:17/75	08:51	09:46-10:13/27		
	22:09		21:07		19:44	18:20	16:06		15:29			
14	04:36	05:15-05:34/19	05:36	21:05	06:42	07:47	07:57	09:02-10:18/76	08:52	09:47-10:13/26		
	22:08		21:05		19:41	18:18	16:04		15:29			
15	04:37	05:16-05:34/18	05:39	21:02	06:44	07:49	08:00	09:01-10:17/76	08:53	09:47-10:13/26		
	22:06		21:02		19:38	18:15	16:02		15:29			
16	04:39	05:18-05:34/16	05:41	21:00	06:47	07:51	08:02	09:02-10:18/76	08:54	09:48-10:13/25		
	22:05		21:00		19:35	18:12	16:00		15:29			
17	04:41	05:19-05:33/14	05:43	20:57	06:49	07:53	08:04	09:02-10:17/75	08:55	09:48-10:13/25		
	22:03		20:57		19:33	18:10	15:58		15:29			
18	04:42	05:21-05:33/12	05:45	20:55	06:51	07:56	08:06	09:02-10:18/76	08:56	09:49-10:12/23		
	22:02		20:55		19:30	18:07	15:56		15:29			
19	04:44	05:22-05:32/10	05:47	19:51-19:58/7	06:53	07:58	08:08	09:03-10:18/75	08:57	09:49-10:12/23		
	22:00		20:52		19:27	18:04	15:54		15:29			
20	04:46	05:24-05:32/8	05:49	19:49-20:00/11	06:55	08:00	08:11	09:02-10:18/76	08:58	09:50-10:12/22		
	21:58		20:49		19:24	18:02	15:53		15:30			
21	04:48	05:25-05:31/6	05:51	19:47-20:02/15	06:57	08:02	08:13	09:03-10:18/75	08:58	09:50-10:13/23		
	21:57		20:47		19:21	17:59	15:51		15:30			
22	04:49	05:27-05:30/3	05:53	19:46-20:02/16	06:59	08:05	08:15	09:03-10:18/75	08:59	09:50-10:13/23		
	21:55		20:44		19:19	17:57	15:49		15:30			
23	04:51		05:56	19:45-20:03/18	07:01	08:07	08:17	09:04-09:37/33	09:00	09:50-10:13/23		
	21:53		20:42		19:16	17:54	15:48	09:38-10:18/40	15:31			
24	04:53		05:58	19:44-20:03/19	07:03	08:09	08:19	09:05-09:38/33	09:00	09:52-10:15/23		
	21:51		20:39		19:13	17:52	15:46	09:39-10:18/39	15:31			
25	04:55		06:00	19:44-20:03/19	07:06	07:11	08:21	09:05-09:38/33	09:00	09:52-10:16/24		
	21:50		20:36		19:10	16:49	15:45	09:39-10:18/39	15:32			
26	04:57		06:02	19:43-20:01/18	07:08	07:14	08:23	09:05-09:37/32	09:01	09:52-10:16/24		
	21:48		20:34		19:07	16:47	15:43	09:40-10:17/37	15:33			
27	04:59		06:04	19:43-19:58/15	07:10	07:16	08:25	09:07-09:38/31	09:01	09:53-10:18/25		
	21:46		20:31		19:05	16:44	15:42	09:41-10:18/37	15:34			
28	05:01		06:06	19:43-19:56/13	07:12	07:18	08:27	09:09-09:38/29	09:01	09:53-10:19/26		
	21:44		20:28		19:02	16:42	15:41	09:42-10:17/35	15:35			
29	05:03		06:08	19:44-19:53/9	07:14	07:21	08:29	09:11-09:37/26	09:01	09:54-10:20/26		
	21:42		20:25		18:59	16:39	15:40	09:42-10:17/35	15:36			
30	05:05		06:11	19:44-19:51/7	07:16	07:23	08:31	09:13-09:37/24	09:01	09:54-10:21/27		
	21:40		20:23		18:56	16:37	15:38	09:42-10:17/35	15:37			
31	05:07		06:13	19:46-19:48/2		07:25			09:01	09:54-10:22/28		
	21:37		20:20			16:34	15:51-15:59/8		15:38			
Potential sun hours	538		474		386	321	241		207			
Sum of minutes with flicker	375		169		0	364	1860		954			

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

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

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 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 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

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

	January	February	March	April	May	June
1	09:00 12:42-13:04/22 15:39	08:21 08:53-09:07/14 16:40 15:50-16:03/13	07:13 16:31-16:52/21 17:46 16:58-17:16/18	06:48 18:15-19:17/62 19:55	05:28 19:58-20:22/24 21:01	04:27 22:03
2	09:00 12:43-13:05/22 15:41	08:19 08:51-09:08/17 16:42 15:50-16:06/16	07:11 16:33-16:51/18 17:48 16:58-17:18/20	06:45 18:14-19:17/63 19:57	05:25 19:58-20:22/24 21:03	04:26 22:04
3	09:00 12:44-13:05/21 15:42	08:17 08:50-09:09/19 16:45 15:50-16:09/19	07:08 16:36-16:48/12 17:50 16:57-17:20/23	06:42 19:01-19:15/14 19:59	05:23 19:59-20:22/23 21:06	04:24 22:05
4	08:59 12:44-13:05/21 15:43	08:15 08:50-09:09/19 16:47 15:48-16:11/23	07:05 16:57-17:22/25 17:53	06:39 19:02-19:13/11 20:02	05:20 20:00-20:21/21 21:08	04:23 21:22-21:25/3 22:07
5	08:59 12:45-13:04/19 15:45	08:12 08:50-09:09/19 16:49 15:48-16:14/26	07:03 16:58-17:25/27 17:55	06:36 18:14-18:59/45 20:04	05:18 20:01-20:20/19 21:10	04:22 21:22-21:27/5 22:08
6	08:58 12:46-13:04/18 15:46	08:10 08:51-09:10/19 16:52 15:47-16:16/29	07:00 16:59-17:28/29 17:57	06:34 18:13-18:58/45 20:06	05:16 20:01-20:18/17 21:12	04:21 21:21-21:28/7 22:10
7	08:57 12:48-13:04/16 15:48	08:08 08:51-09:09/18 16:54 15:48-16:19/31	06:57 17:01-17:30/29 17:59	06:31 18:13-18:58/45 20:08	05:13 20:03-20:17/14 21:14	04:20 21:20-21:29/9 22:11
8	08:57 12:49-13:03/14 15:50	08:06 08:52-09:09/17 16:56 15:47-16:22/35	06:54 17:03-17:32/29 18:02	06:28 18:13-18:57/44 20:10	05:11 20:05-20:15/10 21:17	04:19 21:19-21:29/10 22:12
9	08:56 12:51-13:02/11 15:51	08:03 08:53-09:07/14 16:59 15:47-16:25/38	06:52 17:06-17:34/28 18:04	06:25 18:14-18:57/43 20:13	05:09 21:19	04:19 21:19-21:31/12 22:13
10	08:55 12:54-13:01/7 15:53	08:01 08:55-09:06/11 17:01 15:47-16:27/40	06:49 17:08-17:36/28 18:06	06:23 18:14-18:55/41 20:15	05:06 21:21	04:18 21:19-21:31/12 22:14
11	08:54 15:55	07:59 08:57-09:03/6 17:04 15:48-16:30/42	06:46 17:12-17:40/28 18:08	06:20 18:14-18:54/40 20:17	05:04 21:23	04:17 21:19-21:33/14 22:15
12	08:53 15:57	07:56 15:48-16:32/44 17:06	06:43 17:14-17:42/28 18:11	06:17 18:15-18:54/39 20:19	05:02 21:25	04:17 21:19-21:34/15 22:16
13	08:52 15:59	07:54 15:49-16:35/46 17:08	06:41 17:17-17:44/27 18:13	06:15 18:16-18:52/36 20:21	05:00 21:27	04:16 21:19-21:34/15 22:17
14	08:51 16:00	07:52 15:49-16:38/49 17:11	06:38 17:20-17:46/26 18:15	06:12 18:16-18:50/34 20:24	04:58 21:29	04:16 21:19-21:35/16 22:18
15	08:49 16:02	07:49 15:50-16:40/50 17:13	06:35 17:24-17:48/24 18:17	06:09 18:18-18:49/31 20:26	04:56 21:31	04:15 21:19-21:36/17 22:18
16	08:48 16:04	07:47 15:52-16:43/51 17:15	06:32 17:25-17:50/25 18:20	06:06 18:19-18:47/28 20:28	04:54 21:33	04:15 21:19-21:36/17 22:19
17	08:47 16:06	07:44 15:53-16:45/52 17:18	06:30 17:27-17:51/24 18:22	06:04 18:22-18:45/23 20:30	04:52 21:35	04:15 21:19-21:37/18 22:20
18	08:45 16:08	07:42 15:56-16:48/52 17:20	06:27 17:28-17:50/22 18:24	06:01 18:24-18:42/18 20:32	04:50 21:37	04:15 21:20-21:37/17 22:20
19	08:44 16:11	07:39 16:00-16:51/51 17:22	06:24 17:31-17:48/17 18:26	05:58 18:28-18:37/9 20:35	04:48 21:39	04:15 21:20-21:38/18 22:21
20	08:43 16:13	07:37 16:04-16:53/49 17:25	06:21 17:35-17:46/11 18:29	05:56 20:37	04:46 21:41	04:15 21:20-21:38/18 22:21
21	08:41 16:15	07:34 16:07-16:55/48 17:27	06:18 17:35-17:46/11 18:31	05:53 20:06-20:07/1 20:39	04:44 21:43	04:15 21:20-21:38/18 22:21
22	08:39 16:17	07:32 16:12-16:56/44 17:30	06:16 17:31-17:51/20 18:33	05:50 20:04-20:09/5 20:41	04:42 21:45	04:15 21:20-21:38/18 22:21
23	08:38 16:19	07:29 16:15-16:56/41 17:32	06:13 17:28-17:53/25 18:35	05:48 20:02-20:11/9 20:44	04:40 21:47	04:15 21:20-21:38/18 22:22
24	08:36 16:21	07:27 16:15-16:55/40 17:34	06:10 18:06-18:08/2 18:37	05:45 20:01-20:13/12 20:46	04:39 21:49	04:16 21:21-21:39/18 22:22
25	08:34 16:24	07:24 16:17-16:56/39 17:36	06:07 18:04-18:10/6 18:40	05:43 20:00-20:16/16 20:48	04:37 21:51	04:16 21:20-21:38/18 22:22
26	08:32 16:26	07:21 16:18-16:55/37 17:39	06:04 18:02-18:12/10 18:42	05:40 19:59-20:17/18 20:50	04:35 21:53	04:16 21:21-21:39/18 22:21
27	08:31 16:28	07:19 16:20-16:54/34 17:41	06:02 18:01-18:14/13 18:44	05:38 19:59-20:20/21 20:52	04:34 21:54	04:17 21:21-21:38/17 22:21
28	08:29 16:31	07:16 16:25-16:53/28 17:43	05:59 18:01-18:17/16 18:46	05:35 19:58-20:21/23 20:55	04:32 21:56	04:18 21:22-21:38/16 22:21
29	08:27 16:33	09:00-09:04/4 15:54-15:55/1	06:56 19:00-19:19/19 19:48	05:33 19:58-20:23/25 20:57	04:31 21:58	04:18 21:22-21:37/15 22:21
30	08:25 16:35	08:58-09:06/8 15:53-15:58/5	06:53 18:16-19:19/63 19:51	05:30 19:58-20:23/25 20:59	04:29 21:59	04:19 21:22-21:37/15 22:20
31	08:23 16:38	08:56-09:07/11 15:52-16:01/9	06:50 18:15-19:18/63 19:53		04:28 22:01	
Potential sun hours	227	262	365	429	515	539
Sum of minutes with flicker	209	1278	1004	917	152	394

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 2 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (36)
 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 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

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

	July	August	September	October	November	December
1	04:20 21:23-21:37/14 22:20	05:09 21:35	06:15 18:13-18:53/40 20:17	07:18 17:55-18:22/27 18:53	07:27 08:23-08:35/12 16:32 15:17-15:56/39	08:33 15:37
2	04:21 21:24-21:37/13 22:19	05:11 21:33	06:17 18:12-18:53/41 20:14	07:20 17:51-18:19/28 18:50	07:30 08:22-08:37/15 16:30 15:17-15:54/37	08:35 12:36-12:43/7 15:36
3	04:22 21:25-21:37/12 22:19	05:13 21:31	06:19 18:12-18:55/43 20:12	07:23 17:48-18:16/28 18:48	07:32 08:22-08:38/16 16:27 15:17-15:51/34	08:36 12:34-12:45/11 15:35
4	04:23 21:25-21:36/11 22:18	05:15 20:19-20:23/4 21:29	06:21 18:11-18:55/44 20:09	07:25 17:44-18:13/29 18:45	07:34 08:21-08:38/17 16:25 15:17-15:49/32	08:38 12:33-12:47/14 15:34
5	04:24 21:26-21:35/9 22:17	05:17 20:14-20:26/12 21:26	06:23 18:10-18:55/45 20:06	07:27 17:41-18:11/30 18:42	07:37 08:21-08:39/18 16:23 15:17-15:46/29	08:40 12:33-12:49/16 15:33
6	04:25 21:27-21:35/8 22:16	05:19 20:12-20:28/16 21:24	06:25 18:09-18:54/45 20:03	07:29 17:38-18:07/29 18:39	07:39 08:20-08:39/19 16:20 15:18-15:44/26	08:41 12:33-12:50/17 15:33
7	04:26 21:28-21:34/6 22:16	05:21 20:11-20:29/18 21:22	06:27 18:09-18:54/45 20:01	07:31 17:36-18:04/28 18:37	07:41 08:20-08:39/19 16:18 15:19-15:42/23	08:43 12:32-12:51/19 15:32
8	04:27 21:29-21:33/4 22:15	05:24 20:10-20:30/20 21:19	06:30 18:58-19:08/10 19:58 18:08-18:54/46	07:33 17:34-18:01/27 18:34	07:44 08:20-08:39/19 16:16 15:19-15:39/20	08:44 12:33-12:53/20 15:31
9	04:29 21:31-21:32/1 22:11	05:26 20:09-20:31/22 21:17	06:32 18:55-19:09/14 19:55 18:08-18:53/45	07:36 17:33-17:59/26 18:31	07:46 08:22-08:39/17 16:14 15:21-15:37/16	08:46 12:32-12:53/21 15:31
10	04:30 22:13	05:28 20:08-20:31/23 21:15	06:34 18:54-19:10/16 19:52 18:08-18:53/45	07:38 17:32-17:56/24 18:28 17:13-17:20/7	07:48 08:25-08:39/14 16:12 15:21-15:34/13	08:47 12:32-12:54/22 15:30
11	04:31 22:11	05:30 20:07-20:31/24 21:12	06:36 18:08-19:11/63 19:49	07:40 17:08-17:23/15 18:26 17:31-17:53/22	07:50 08:27-08:38/11 16:10 15:23-15:32/9	08:49 12:32-12:55/23 15:30
12	04:33 22:10	05:32 20:06-20:30/24 21:10	06:38 18:08-19:11/63 19:47	07:42 17:06-17:24/18 18:23 17:31-17:50/19	07:53 08:30-08:38/8 16:08 15:25-15:30/5	08:50 12:33-12:56/23 15:29
13	04:34 22:09	05:34 20:06-20:30/24 21:07	06:40 18:51-19:11/20 19:44 18:08-18:50/42	07:44 17:03-17:26/23 18:20 17:31-17:48/17	07:55 08:32-08:36/4 16:06 15:26-15:27/1	08:51 12:32-12:56/24 15:29
14	04:36 22:08	05:36 20:05-20:30/25 21:05	06:42 18:50-19:10/20 19:41 18:08-18:49/41	07:47 16:55-17:26/31 18:18 17:31-17:45/14	07:57 16:04	08:52 12:32-12:57/25 15:29
15	04:37 22:06	05:38 20:05-20:28/23 21:02	06:44 18:50-19:07/17 19:38 18:08-18:48/40	07:49 16:52-17:26/34 18:15 17:31-17:41/10	07:59 16:02	08:53 12:33-12:57/24 15:29
16	04:39 22:05	05:41 20:05-20:26/21 21:00	06:46 18:50-19:04/14 19:35 18:09-18:47/38	07:51 16:49-17:27/38 18:12 17:33-17:39/6	08:02 16:00	08:54 12:34-12:59/25 15:29
17	04:41 22:03	05:43 20:06-20:23/17 20:57	06:49 18:50-19:01/11 19:33 18:09-18:45/36	07:53 16:47-17:27/40 18:10 17:34-17:36/2	08:04 15:58	08:55 12:33-12:58/25 15:29
18	04:42 22:02	05:45 20:06-20:21/15 20:55	06:51 18:51-18:58/7 19:30 18:10-18:44/34	07:56 16:47-17:27/40 18:07	08:06 15:56	08:56 12:34-12:59/25 15:29
19	04:44 22:00	05:47 20:07-20:19/12 20:52	06:53 18:52-18:56/4 19:27 18:11-18:41/30	07:58 16:45-17:27/42 18:04	08:08 15:54	08:57 12:34-13:00/26 15:29
20	04:46 21:58	05:49 20:08-20:16/8 20:49	06:55 18:13-18:39/26 19:24	08:00 16:41-17:26/45 18:02	08:11 15:53	08:58 12:35-13:01/26 15:30
21	04:48 21:57	05:51 20:09-20:14/5 20:47	06:57 18:15-18:36/21 19:21	08:02 16:37-17:26/49 17:59	08:13 15:51	08:58 12:35-13:00/25 15:30
22	04:49 21:55	05:53 20:44	06:59 18:19-18:33/14 19:19	08:05 16:33-17:22/49 17:57	08:15 15:49	08:59 12:36-13:01/25 15:30
23	04:51 21:53	05:56 20:42	07:01 18:20-18:30/10 19:16	08:07 16:29-17:20/51 17:54	08:17 15:48	08:59 12:36-13:02/26 15:31
24	04:53 21:51	05:58 18:31-18:41/10 20:39	07:03 18:17-18:32/15 19:13	08:09 16:25-17:17/52 17:52	08:19 15:46	09:00 12:37-13:03/26 15:31
25	04:55 21:49	06:00 18:26-18:45/19 20:36	07:05 18:12-18:32/20 19:10	07:11 15:23-16:15/52 16:49	08:21 15:45	09:00 12:38-13:03/25 15:32
26	04:57 21:47	06:02 18:23-18:47/24 20:34	07:08 18:09-18:32/23 19:07	07:14 15:21-16:12/51 16:46	08:23 15:43	09:00 12:38-13:03/25 15:33
27	04:59 21:46	06:04 18:21-18:49/28 20:31	07:10 18:08-18:32/24 19:04	07:16 15:20-16:10/50 16:44	08:25 15:42	09:01 12:39-13:04/25 15:34
28	05:01 21:44	06:06 18:19-18:50/31 20:28	07:12 18:05-18:30/25 19:02	07:18 15:18-16:06/48 16:42	08:27 15:41	09:01 12:39-13:04/25 15:35
29	05:03 21:41	06:08 18:17-18:51/34 20:25	07:14 18:01-18:27/26 18:59	07:20 15:18-16:04/46 16:39	08:29 15:39	09:01 12:40-13:04/24 15:36
30	05:05 21:39	06:10 18:16-18:52/36 20:23	07:16 17:58-18:25/27 18:56	07:23 15:17-16:01/44 16:37	08:31 15:38	09:01 12:40-13:04/24 15:37
31	05:07 21:37	06:13 18:14-18:53/39 20:20		07:25 08:26-08:34/8 16:34 15:17-15:59/42		09:01 12:41-13:05/24 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	78	534	1190	1241	473	667

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 3 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (33)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January		February	March	April	May	June
1	09:00	10:12-10:34/22	08:21	07:13	06:48	05:28	04:27
	15:39	14:26-14:47/21	16:40	17:46	19:55	21:01	22:03
2	09:00	10:13-10:35/22	08:19	07:11	06:45	05:25	04:26
	15:41	14:27-14:48/21	16:42	17:48	19:57	21:03	22:04
3	09:00	10:13-10:35/22	08:17	07:08	06:42	05:23	04:24
	15:42	14:27-14:48/21	16:45	17:50	19:59	21:06	22:05
4	08:59	10:13-10:35/22	08:15	07:05	06:39	05:20	04:23
	15:43	14:27-14:49/22	16:47	17:53	20:02	21:08	22:07
5	08:59	10:14-10:35/21	08:12	07:03	06:37	05:18	04:22
	15:45	14:27-14:49/22	16:49	17:55	20:04	21:10	22:08
6	08:58	10:14-10:35/21	08:10	07:00	06:34	05:16	04:21
	15:46	14:28-14:49/21	16:52	17:57	20:06	21:12	22:10
7	08:57	10:15-10:36/21	08:08	06:57	06:31	05:13	04:20
	15:48	14:28-14:50/22	16:54	17:59	20:08	21:14	22:11
8	08:57	10:16-10:36/20	08:06	06:54	06:28	05:11	04:19
	15:50	14:29-14:50/21	16:56	18:02	20:10	21:17	22:12
9	08:56	10:17-10:36/19	08:04	06:52	06:26 06:52-06:57/5	05:09	04:19
	15:51	14:29-14:51/22	16:59	18:04	20:13	21:19	22:13
10	08:55	10:18-10:36/18	08:01	06:49 17:30-17:36/6	06:23 06:49-06:58/9	05:06	04:18
	15:53	14:30-14:51/21	17:01	18:06	20:15	21:21	22:14
11	08:54	10:20-10:36/16	07:59	06:46 17:29-17:40/11	06:20 06:47-07:00/13	05:04	04:17
	15:55	14:30-14:51/21	17:04	18:09	20:17	21:23	22:15
12	08:53	10:20-10:35/15	07:57	06:43 17:27-17:42/15	06:17 06:44-07:00/16	05:02	04:17
	15:57	14:31-14:51/20	17:06	18:11	20:19	21:25	22:16
13	08:52	10:22-10:35/13	07:54	06:41 17:26-17:44/18	06:15 06:41-06:59/18	05:00	04:16
	15:59	14:32-14:52/20	17:08	18:13	20:21	21:27	22:17
14	08:51	10:23-10:34/11	07:52	06:38 17:25-17:46/21	06:12 06:40-07:00/20	04:58	04:16
	16:01	14:32-14:51/19	17:11	18:15	20:24	21:29	22:18
15	08:49	10:26-10:32/6	07:49	06:35 17:24-17:47/23	06:09 06:39-06:59/20	04:56	04:15
	16:02	14:33-14:51/18	17:13	18:17	20:26	21:31	22:18
16	08:48	14:34-14:51/17	07:47	06:32 17:23-17:46/23	06:06 06:39-06:58/19	04:54	04:15
	16:04		17:15	18:20	20:28	21:33	22:19
17	08:47	14:35-14:51/16	07:44	06:30 17:24-17:47/23	06:04 06:40-06:58/18	04:52	04:15
	16:06		17:18	18:22	20:30	21:35	22:20
18	08:45	14:36-14:50/14	07:42	06:27 17:24-17:46/22	06:01 06:40-06:57/17	04:50	04:15
	16:09		17:20	18:24	20:32	21:37	22:20
19	08:44	14:38-14:50/12	07:39	06:24 17:24-17:45/21	05:58 06:41-06:56/15	04:48	04:15
	16:11		17:23	18:26	20:35	21:39	22:21
20	08:43	14:41-14:48/7	07:37	06:21 17:24-17:44/20	05:56 06:42-06:54/12	04:46	04:15
	16:13		17:25	18:29	20:37	21:41	22:21
21	08:41		07:34	06:18 17:25-17:42/17	05:53 06:45-06:51/6	04:44	04:15
	16:15		17:27	18:31	20:39	21:43	22:21
22	08:39		07:32	06:16 17:27-17:41/14	05:51	04:42	04:15
	16:17		17:30	18:33	20:41	21:45	22:21
23	08:38		07:29	06:13 17:30-17:37/7	05:48	04:40	04:15
	16:19		17:32	18:35	20:44	21:47	22:22
24	08:36		07:27	06:10	05:45	04:39	04:16
	16:22		17:34	18:37	20:46	21:49	22:22
25	08:34		07:24	06:07	05:43	04:37	04:16
	16:24		17:37	18:40	20:48	21:51	22:22
26	08:33		07:21	06:04	05:40	04:35	04:17
	16:26		17:39	18:42	20:50	21:53	22:22
27	08:31		07:19	06:02	05:38	04:34	04:17
	16:28		17:41	18:44	20:52	21:54	22:21
28	08:29		07:16	05:59	05:35	04:32	04:18
	16:31		17:43	18:46	20:55	21:56	22:21
29	08:27			06:56	05:33	04:31	04:18
	16:33			19:48	20:57	21:58	22:21
30	08:25			06:53	05:30	04:29	04:19
	16:35			19:51	20:59	21:59	22:20
31	08:23			06:50		04:28	
	16:38			19:53		22:01	
Potential sun hours	227		262	365	429	515	539
Sum of minutes with flicker	647	0	241	188	0	0	0

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 3 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (33)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	July	August	September	October	November	December
1	04:20 22:20	05:09 21:35	06:15 20:17	06:46-06:58/12 18:53	07:18 16:32	08:33 15:37
2	04:21 22:19	05:11 21:33	06:17 20:15	06:48-06:57/9 18:51	07:21 16:30	08:35 15:36
3	04:22 22:19	05:13 21:31	06:19 20:12	06:50-06:55/5 18:48	07:23 16:27	08:36 15:35
4	04:23 22:18	05:15 21:29	06:21 20:09	18:10-18:13/3 18:45	07:34 16:25	08:38 15:34
5	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:33
7	04:26 22:16	05:22 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	04:27 22:15	05:24 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	04:29 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
10	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:47 15:30
11	04:31 22:11	05:30 21:12	06:36 19:50	07:40 18:26	07:50 16:10	08:49 15:30
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	07:55 16:06	08:51 15:29
14	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:52 15:29
15	04:37 22:06	05:39 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:53 15:29
16	04:39 22:05	05:41 21:00	06:47 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:55 15:29
18	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:56 15:29
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:08 15:54	08:57 15:29
20	04:46 21:58	05:49 20:49	06:55 19:24	18:17-18:21/4 18:02	08:11 15:53	08:58 15:30
21	04:48 21:57	05:51 20:47	06:57 19:21	18:13-18:25/12 17:59	08:13 15:51	08:58 15:30
22	04:50 21:55	05:53 20:44	06:59 19:19	18:11-18:27/16 17:57	08:15 15:49	08:59 15:30
23	04:51 21:53	05:56 20:42	07:01 19:16	18:09-18:28/19 17:54	08:17 15:48	08:59 15:31
24	04:53 21:51	05:58 20:39	07:03 19:13	18:08-18:28/20 17:52	08:19 15:46	09:00 15:32
25	04:55 21:49	06:00 20:36	07:06 19:10	18:07-18:29/22 16:49	08:21 15:45	09:00 15:32
26	04:57 21:48	06:02 20:34	07:08 19:07	18:06-18:28/22 16:47	08:23 15:43	09:00 15:33
27	04:59 21:46	06:04 20:31	07:10 19:05	18:05-18:28/23 16:44	08:25 15:42	09:01 15:34
28	05:01 21:44	06:06 20:28	07:12 19:02	18:05-18:28/23 16:42	08:27 15:41	09:01 15:35
29	05:03 21:42	06:08 20:25	07:14 18:59	18:05-18:27/22 16:39	08:29 15:40	09:01 15:36
30	05:05 21:39	06:11 20:23	07:16 18:56	18:06-18:25/19 16:37	08:31 15:38	09:01 15:37
31	05:07 21:37	06:13 20:20	06:44-06:59/15 16:34	07:25 16:34	14:12-14:33/21 15:38	09:01 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	0	165	228	40	189	1332

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 4 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (41)
 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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January	February	March	April	May	June
1	09:00 14:11-14:53/42 15:39	08:21 15:42-16:03/21 16:40 14:37-15:17/40	07:13 16:47-17:08/21 17:46	06:48 18:38-19:06/28 19:55	05:28 19:49-20:17/28 21:01	04:27 19:56-20:11/15 22:02
2	09:00 14:11-14:54/43 15:41	08:19 15:43-16:06/23 16:42 14:37-15:18/41	07:11 16:47-17:07/20 17:48	06:45 18:39-19:05/26 19:57	05:25 19:47-20:17/30 21:03	04:26 19:58-20:09/11 22:04
3	09:00 14:13-14:56/43 15:42	08:17 15:43-16:08/25 16:45 14:38-15:18/40	07:08 16:48-17:06/18 17:50	06:42 18:41-19:04/23 19:59	05:23 19:47-20:18/31 21:06	04:24 20:00-20:07/7 22:05
4	08:59 14:13-14:58/45 15:43	08:15 15:44-16:11/27 16:47 14:37-15:17/40	07:05 16:48-17:05/17 17:53	06:39 18:43-19:01/18 20:02	05:20 19:46-20:19/33 21:08	04:23 22:07
5	08:59 14:13-14:59/46 15:45	08:12 15:45-16:14/29 16:49 14:38-15:18/40	07:03 16:50-17:03/13 17:55	06:36 18:46-18:59/13 20:04	05:18 19:46-20:20/34 21:10	04:22 22:08
6	08:58 14:14-15:01/47 15:46	08:10 15:46-16:16/30 16:52 14:38-15:17/39	07:00 16:53-17:01/8 17:57	06:34 20:06 20:06	05:16 19:44-20:19/35 21:12	04:21 22:09
7	08:57 14:15-15:03/48 15:48	08:08 15:48-16:17/29 14:39-15:17/38 16:54 16:18-16:19/1	06:57 17:59 17:59	06:31 20:08 20:08	05:13 19:44-20:20/36 21:14	04:20 22:11
8	08:57 14:16-15:05/49 15:50	08:06 15:49-16:22/33 16:56 14:39-15:16/37	06:54 18:02 18:02	06:28 20:10 20:10	05:11 19:44-20:20/36 21:16	04:19 22:12
9	08:56 14:17-15:07/50 15:51	08:03 15:54-16:25/31 16:59 14:41-15:16/35	06:52 18:04 18:04	06:25 20:13 20:13	05:09 19:43-20:20/37 21:19	04:19 22:13
10	08:55 14:18-15:09/51 15:53	08:01 15:55-16:27/32 17:01 14:41-15:15/34	06:49 18:06 18:06	06:23 20:15 20:15	05:06 19:43-20:20/37 21:21	04:18 22:14
11	08:54 14:18-15:11/53 15:55	07:59 15:59-16:30/31 17:04 14:43-15:14/31	06:46 18:08 18:08	06:20 20:17 20:17	05:04 19:43-20:21/38 21:23	04:17 22:15
12	08:53 14:20-15:13/53 15:57	07:56 16:01-16:32/31 17:06 14:44-15:13/29	06:43 18:11 18:11	06:17 20:19 20:19	05:02 19:43-20:20/37 21:25	04:17 22:16
13	08:52 14:21-15:15/54 15:59	07:54 16:15-16:35/20 14:46-15:12/26 17:08 16:05-16:12/7	06:41 18:13 18:13	06:15 20:21 20:21	05:00 19:43-20:20/37 21:27	04:16 22:17
14	08:51 14:23-15:18/55 16:00	07:52 16:14-16:38/24 17:11 14:47-15:10/23	06:38 17:40-17:46/6 18:15	06:12 20:24 20:24	04:58 19:43-20:20/37 21:29	04:16 22:18
15	08:49 14:25-15:19/54 16:02	07:49 16:14-16:40/26 17:13 14:50-15:07/17	06:35 17:38-17:48/10 18:17	06:09 20:26 20:26	04:56 19:44-20:21/37 21:31	04:15 22:18
16	08:48 14:29-15:21/52 16:04	07:47 16:15-16:43/28 17:15 14:55-15:03/8	06:32 17:37-17:50/13 18:20	06:06 20:28 20:28	04:54 19:44-20:20/36 21:33	04:15 22:19
17	08:47 14:33-15:21/48 16:06	07:44 16:16-16:43/27 17:18	06:30 17:36-17:53/17 18:22	06:04 20:30 20:30	04:52 19:44-20:20/36 21:35	04:15 22:20
18	08:45 14:36-15:21/45 16:09	07:42 16:17-16:43/26 17:20	06:27 17:35-17:55/20 18:24	06:01 20:32 20:32	04:50 19:44-20:19/35 21:37	04:15 22:20
19	08:44 14:39-15:21/42 16:11	07:39 16:20-16:43/23 17:22	06:24 17:35-17:57/22 18:26	05:58 20:35 20:35	04:48 19:45-20:20/35 21:39	04:15 22:20
20	08:42 14:39-15:22/43 16:13	07:37 16:24-16:41/17 17:25	06:21 17:34-17:59/25 18:29	05:56 20:01-20:05/4 20:37	04:46 19:45-20:19/34 21:41	04:15 22:21
21	08:41 14:38-15:22/44 16:15	07:34 16:54-16:55/1 17:27 16:27-16:40/13	06:18 17:34-18:01/27 18:31	05:53 19:58-20:07/9 20:39	04:44 19:46-20:18/32 21:43	04:15 22:21
22	08:39 14:38-15:22/44 16:17	07:32 16:52-16:58/6 17:30 16:30-16:38/8	06:16 17:34-18:03/29 18:33	05:50 19:57-20:09/12 20:41	04:42 19:47-20:18/31 21:45	04:15 22:21
23	08:38 14:38-15:22/44 16:19	07:29 16:50-17:01/11 17:32	06:13 17:36-18:06/30 18:35	05:48 19:55-20:11/16 20:43	04:40 19:47-20:17/30 21:47	04:15 22:21
24	08:36 14:37-15:22/45 16:21	07:27 16:48-17:03/15 17:34	06:10 17:36-18:08/32 18:37	05:45 19:55-20:13/18 20:46	04:39 19:48-20:17/29 21:49	04:16 22:22
25	08:34 14:37-15:21/44 16:24	07:24 16:48-17:06/18 17:36	06:07 17:38-18:09/31 18:40	05:43 19:54-20:16/22 20:48	04:37 19:49-20:17/28 21:51	04:16 22:22
26	08:32 14:37-15:21/44 16:26 15:44-15:48/4	07:21 16:47-17:08/21 17:39	06:04 17:37-18:09/32 18:42	05:40 19:53-20:16/23 20:50	04:35 19:49-20:16/27 21:53	04:16 22:21
27	08:31 14:36-15:19/43 16:28 15:43-15:50/7	07:19 16:47-17:08/21 17:41	06:02 17:36-18:09/33 18:44	05:38 19:53-20:16/23 20:52	04:34 19:51-20:15/24 21:54	04:17 22:21
28	08:29 14:36-15:18/42 16:31 15:43-15:52/9	07:16 16:46-17:08/22 17:43	05:59 17:37-18:09/32 18:46	05:35 19:53-20:15/22 20:55	04:32 19:52-20:15/23 21:56	04:18 22:21
29	08:27 14:37-15:16/39 16:33 15:43-15:55/12		05:56 18:37-19:09/32 19:48	05:33 19:52-20:15/23 20:57	04:31 19:52-20:13/21 21:58	04:18 22:21
30	08:25 15:43-15:58/15 16:35 14:37-15:17/40		05:53 18:37-19:08/31 19:51	05:30 19:50-20:16/26 20:59	04:29 19:53-20:13/20 21:59	04:19 22:20
31	08:23 15:43-16:01/18 16:38 14:37-15:18/41		06:50 18:37-19:07/30 19:53		04:28 19:55-20:12/17 22:01	
Potential sun hours	227	262	365	429	515	539
Sum of minutes with flicker	1498	1195	549	306	981	33

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 4 - VESTAS V162-7.2 7200 162.0 !OI hub: 162.0 m (TOT: 243.0 m) (41)
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 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

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

	July	August	September	October	November	December
1	04:20 22:20	05:09 19:53-20:31/38 21:35	06:15 20:17	07:18 18:53	07:27 15:24-15:56/32 16:32 14:10-14:44/34	08:33 14:00-14:53/53 15:37
2	04:21 22:19	05:11 19:53-20:31/38 21:33	06:17 20:14	07:20 18:50	07:30 15:23-15:54/31 16:30 14:10-14:46/36	08:35 14:00-14:52/52 15:36
3	04:22 22:19	05:13 19:53-20:31/38 21:31	06:19 20:12	07:23 18:48	07:32 15:18-15:51/33 16:27 14:09-14:46/37	08:36 14:00-14:50/50 15:35
4	04:23 22:18	05:15 19:54-20:31/37 21:28	06:21 20:09	07:25 18:45	07:34 15:17-15:47/30 14:09-14:47/38 16:25 15:48-15:49/1	08:38 14:00-14:49/49 15:34
5	04:24 22:17	05:17 19:54-20:30/36 21:26	06:23 20:06	07:27 18:42	07:37 15:15-15:46/31 16:23 14:08-14:47/39	08:40 14:00-14:48/48 15:33
6	04:25 22:16	05:19 19:54-20:30/36 21:24	06:25 20:03	07:29 18:39	07:39 15:15-15:44/29 16:20 14:08-14:47/39	08:41 14:00-14:47/47 15:33
7	04:26 22:16	05:21 19:55-20:30/35 21:22	06:27 18:43-18:55/12 20:01	07:31 18:37	07:41 15:14-15:42/28 16:18 14:08-14:48/40	08:43 14:01-14:47/46 15:32
8	04:27 22:15	05:24 19:55-20:29/34 21:19	06:30 18:39-18:57/18 19:58	07:33 17:26-17:37/11 18:34	07:44 15:13-15:39/26 16:16 14:07-14:48/41	08:44 14:01-14:46/45 15:31
9	04:29 20:09-20:13/4 22:14	05:26 19:56-20:28/32 21:17	06:32 18:35-18:58/23 19:55	07:36 17:24-17:39/15 18:31	07:46 15:14-15:37/23 16:14 14:08-14:48/40	08:46 14:01-14:44/43 15:31
10	04:30 20:06-20:16/10 22:12	05:28 19:56-20:28/32 21:14	06:34 18:33-18:58/25 19:52	07:38 17:23-17:40/17 18:28	07:48 15:13-15:34/21 16:12 14:07-14:48/41	08:47 14:01-14:44/43 15:30
11	04:31 20:05-20:18/13 22:11	05:30 19:57-20:27/30 21:12	06:36 18:31-18:59/28 19:49	07:40 17:21-17:41/20 18:26	07:50 15:14-15:32/18 16:10 14:08-14:48/40	08:49 14:01-14:43/42 15:30
12	04:33 20:04-20:20/16 22:10	05:32 19:58-20:25/27 21:10	06:38 18:29-18:59/30 19:47	07:42 17:20-17:41/21 18:23	07:53 15:14-15:29/15 16:08 14:08-14:48/40	08:50 14:02-14:43/41 15:29
13	04:34 20:03-20:21/18 22:09	05:34 19:58-20:23/25 21:07	06:40 18:28-18:59/31 19:44	07:44 17:20-17:41/21 18:20	07:55 14:08-14:48/40 16:06 15:14-15:27/13	08:51 14:02-14:42/40 15:29
14	04:36 20:01-20:22/21 22:07	05:36 20:00-20:23/23 21:05	06:42 18:27-18:59/32 19:41	07:47 17:19-17:41/22 18:18	07:57 14:09-14:51/42 16:04 15:15-15:25/10	08:52 14:02-14:42/40 15:29
15	04:37 20:01-20:23/22 22:06	05:38 20:00-20:23/23 21:02	06:44 18:26-18:59/33 19:38	07:49 17:19-17:40/21 18:15	07:59 14:09-14:52/43 16:02 15:16-15:22/6	08:53 14:03-14:41/38 15:29
16	04:39 20:00-20:24/24 22:05	05:41 20:00-20:23/23 21:00	06:46 18:26-18:58/32 19:35	07:51 17:20-17:39/19 18:12	08:02 14:10-14:54/44 16:00 15:17-15:21/4	08:54 14:03-14:41/38 15:29
17	04:41 19:59-20:25/26 22:03	05:43 20:00-20:22/22 20:57	06:49 18:25-18:57/32 19:33	07:53 17:20-17:36/16 18:10	08:04 14:10-14:54/44 15:58	08:55 14:03-14:41/38 15:29
18	04:42 19:58-20:25/27 22:02	05:45 20:00-20:21/21 20:55	06:51 18:25-18:56/31 19:30	07:55 17:21-17:34/13 18:07	08:06 14:11-14:56/45 15:56	08:56 14:04-14:41/37 15:29
19	04:44 19:58-20:27/29 22:00	05:47 20:00-20:19/19 20:52	06:53 18:23-18:55/32 19:27	07:58 17:21-17:31/10 18:04	08:08 14:12-14:56/44 15:54	08:57 14:05-14:42/37 15:29
20	04:46 19:58-20:28/30 21:58	05:49 20:01-20:16/15 20:49	06:55 18:21-18:53/32 19:24	08:00 17:23-17:28/5 18:02 17:00-17:09/9	08:10 14:13-14:57/44 15:53	08:58 14:05-14:42/37 15:30
21	04:48 19:57-20:28/31 21:57	05:51 20:02-20:14/12 20:47	06:57 18:20-18:50/30 19:21	08:02 16:57-17:11/14 17:59	08:13 14:13-14:57/44 15:51	08:58 14:05-14:42/37 15:30
22	04:49 19:57-20:29/32 21:55	05:53 20:03-20:11/8 20:44	06:59 18:19-18:47/28 19:18	08:04 16:53-17:12/19 17:57	08:15 14:15-14:58/43 15:49	08:59 14:06-14:43/37 15:30
23	04:51 19:56-20:29/33 21:53	05:56 20:05-20:09/4 20:41	07:01 18:19-18:45/26 19:16	08:07 16:49-17:13/24 17:54	08:17 14:16-14:58/42 15:48	08:59 14:06-14:43/37 15:31
24	04:53 19:55-20:29/34 21:51	05:58 20:06-20:10/1 20:39	07:03 18:18-18:42/24 19:13	08:09 16:47-17:13/26 17:52	08:19 14:13-14:58/45 15:46	09:00 14:07-14:44/37 15:31
25	04:55 19:55-20:30/35 21:49	06:00 20:07-20:11/1 20:36	07:05 18:18-18:39/21 19:10	07:11 15:46-16:14/28 16:49	08:21 14:11-14:59/48 15:45	09:00 14:08-14:45/37 15:32
26	04:57 19:55-20:31/36 21:47	06:02 20:08-20:12/1 20:33	07:08 18:18-18:36/18 19:07	07:14 15:45-16:12/27 16:46 14:23-14:34/11	08:23 14:07-14:59/52 15:43	09:00 14:08-14:46/38 15:33
27	04:59 19:54-20:30/36 21:45	06:04 20:09-20:13/1 20:31	07:10 18:18-18:33/15 19:04	07:16 15:45-16:10/25 16:44 14:19-14:38/19	08:25 14:04-14:58/54 15:42	09:01 14:09-14:47/38 15:34
28	05:01 19:54-20:31/37 21:43	06:06 20:10-20:14/1 20:28	07:12 18:19-18:30/11 19:02	07:18 15:44-16:06/22 16:42 14:16-14:39/23	08:27 14:03-14:58/55 15:41	09:01 14:09-14:48/39 15:35
29	05:03 19:54-20:31/37 21:41	06:08 20:11-20:15/1 20:25	07:14 18:20-18:27/7 18:59	07:20 15:44-16:04/20 14:15-14:42/27 16:39 15:34-15:42/8	08:29 14:02-14:56/54 15:39	09:01 14:09-14:48/39 15:36
30	05:05 19:54-20:31/37 21:39	06:10 20:12-20:16/1 20:23	07:16 18:22-18:25/3 18:56	07:23 15:30-16:01/31 16:37 14:13-14:42/29	08:31 14:01-14:55/54 15:38	09:01 14:10-14:50/40 15:37
31	05:07 19:54-20:32/38 21:37	06:13 20:13-20:17/1 20:20		07:25 15:28-15:59/31 16:34 14:12-14:44/32		09:00 14:11-14:51/40 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	626	608	574	636	1653	1283

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 5 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (31)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January	February	March	April	May	June
1	09:00 11:13-11:48/35 15:39 12:43-13:23/40	08:21 09:19-09:39/20 16:40	07:13 07:41-07:58/17 17:46	06:48 07:29-07:54/25 19:55	05:28 06:20-06:45/25 21:01	04:27 05:09-05:39/30 22:03
2	09:00 11:14-11:49/35 15:41 12:44-13:24/40	08:19 09:19-09:38/19 16:42	07:11 07:38-07:58/20 17:48	06:45 07:30-07:52/22 19:57	05:25 06:21-06:43/22 21:04	04:26 05:09-05:39/30 22:04
3	09:00 11:15-11:49/34 15:42 12:44-13:24/40	08:17 09:21-09:37/16 16:45	07:08 07:35-07:57/22 17:50	06:42 07:31-07:48/17 19:59	05:23 06:21-06:41/20 21:06	04:24 05:10-05:39/29 22:06
4	08:59 11:16-11:48/32 15:43 12:44-13:24/40	08:15 09:22-09:35/13 16:47	07:05 07:33-07:58/25 17:53	06:39 07:33-07:44/11 20:02	05:20 06:22-06:40/18 21:08	04:23 05:10-05:39/29 22:07
5	08:59 11:17-11:48/31 15:45 12:45-13:24/39	08:13 09:25-09:34/9 16:49	07:03 07:30-07:57/27 17:55	06:37 07:30-07:44/11 20:04	05:18 06:24-06:38/14 21:10	04:22 05:10-05:39/29 22:08
6	08:58 11:18-11:32/14 12:45-13:24/39 15:46 11:33-11:47/14	08:10 08:10 16:52	07:00 07:27-07:55/28 17:57	06:34 07:27-07:44/11 20:06	05:16 06:26-06:36/10 21:12	04:21 05:10-05:39/29 22:10
7	08:57 11:20-11:31/11 12:46-13:25/39 15:48 11:34-11:47/13	08:08 08:08 16:54	06:57 07:24-07:54/30 18:00	06:31 07:24-07:44/11 20:08	05:13 07:24-07:44/11 21:14	04:20 05:10-05:38/28 22:11
8	08:57 11:22-11:30/8 12:46-13:25/39 15:50 11:37-11:45/8	08:06 08:06 16:57	06:55 07:21-07:51/30 18:02	06:28 07:21-07:44/11 20:10	05:11 07:21-07:44/11 21:17	04:20 05:11-05:39/28 22:12
9	08:56 11:40-11:43/3 15:51 12:47-13:26/39	08:04 08:04 16:59	06:52 07:20-07:45/25 18:04	06:26 07:20-07:44/11 20:13	05:09 07:20-07:44/11 21:19	04:19 05:11-05:38/27 22:13
10	08:55 12:48-13:26/38 15:53 15:53	08:01 08:01 17:01	06:49 07:20-07:44/24 18:06	06:23 07:20-07:44/24 20:15	05:07 07:20-07:44/24 21:21	04:18 05:12-05:39/27 22:14
11	08:54 12:49-13:27/38 15:55 15:55	07:59 07:59 17:04	06:46 07:20-07:42/22 18:09	06:20 07:20-07:42/22 20:17	05:04 07:20-07:42/22 21:23	04:17 05:12-05:38/26 22:15
12	08:53 12:49-13:26/37 15:57 15:57	07:57 08:27-08:31/4 17:06	06:44 07:21-07:39/18 18:11	06:17 07:21-07:39/18 20:19	05:02 07:21-07:39/18 21:25	04:17 05:13-05:38/25 22:16
13	08:52 12:50-13:27/37 15:59 15:59	07:54 08:24-08:32/8 17:08	06:41 07:22-07:36/14 18:13	06:15 07:22-07:36/14 20:22	05:00 07:22-07:36/14 21:27	04:16 05:13-05:37/24 22:17
14	08:51 12:50-13:26/36 16:01 16:01	07:52 08:21-08:33/12 17:11	06:38 07:24-07:30/6 18:15	06:12 07:24-07:30/6 20:24	04:58 07:24-07:30/6 21:29	04:16 05:13-05:38/25 22:18
15	08:50 12:51-13:27/36 16:03 16:03	07:49 08:19-08:34/15 17:13	06:35 08:19-08:34/15 18:18	06:09 06:36-06:45/9 20:26	04:56 05:28-05:32/4 21:31	04:16 05:14-05:38/24 22:19
16	08:48 12:52-13:27/35 16:04 09:26-09:30/4	07:47 08:16-08:34/18 17:16	06:32 08:16-08:34/18 18:20	06:07 06:33-06:46/13 20:28	04:54 05:26-05:33/7 21:33	04:15 05:14-05:38/24 22:19
17	08:47 12:52-13:26/34 16:07 09:24-09:31/7	07:44 08:14-08:34/20 17:18	06:30 08:14-08:34/20 18:22	06:04 06:31-06:48/17 20:30	04:52 05:24-05:34/10 21:36	04:15 05:14-05:38/24 22:20
18	08:46 12:54-13:27/33 16:09 09:23-09:33/10	07:42 08:15-08:35/20 17:20	06:27 08:15-08:35/20 18:24	06:01 06:28-06:49/21 20:33	04:50 05:23-05:36/13 21:38	04:15 05:15-05:38/23 22:20
19	08:44 12:55-13:26/31 16:11 09:21-09:34/13	07:39 08:14-08:34/20 17:23	06:24 08:14-08:34/20 18:26	05:58 06:26-06:50/24 20:35	04:48 05:21-05:36/15 21:40	04:15 05:15-05:38/23 22:21
20	08:43 12:55-13:26/31 16:13 09:19-09:35/16	07:37 08:14-08:33/19 17:25	06:21 06:47-06:55/8 18:29	05:56 06:23-06:50/27 20:37	04:46 05:19-05:37/18 21:41	04:15 05:15-05:38/23 22:21
21	08:41 12:57-13:25/28 16:15 09:17-09:36/19	07:34 08:16-08:33/17 17:27	06:19 06:45-06:57/12 18:31	05:53 06:22-06:51/29 20:39	04:44 05:18-05:38/20 21:43	04:15 05:15-05:38/23 22:21
22	08:39 12:58-13:24/26 16:17 09:16-09:37/21	07:32 08:16-08:32/16 17:30	06:16 06:42-06:58/16 18:33	05:51 06:21-06:50/29 20:41	04:42 05:16-05:38/22 21:45	04:15 05:15-05:38/23 22:22
23	08:38 12:59-13:23/24 16:19 09:16-09:37/21	07:29 08:17-08:30/13 17:32	06:13 06:39-06:59/20 18:35	05:48 06:20-06:51/31 20:44	04:40 05:15-05:38/23 21:47	04:15 05:16-05:39/23 22:22
24	08:36 13:01-13:22/21 16:22 09:16-09:38/22	07:27 08:21-08:28/7 17:34	06:10 06:36-06:59/23 18:37	05:45 06:19-06:50/31 20:46	04:39 05:13-05:38/25 21:49	04:16 05:16-05:39/23 22:22
25	08:34 13:04-13:20/16 16:24 09:16-09:39/23	07:24 07:52-07:54/2 17:37	06:07 06:33-06:59/26 18:40	05:43 06:19-06:50/31 20:48	04:37 05:12-05:39/27 21:51	04:16 05:16-05:39/23 22:22
26	08:33 13:07-13:17/10 16:26 09:16-09:39/23	07:21 07:49-07:55/6 17:39	06:05 06:31-07:00/29 18:42	05:40 06:18-06:49/31 20:50	04:35 05:11-05:38/27 21:53	04:17 05:16-05:40/24 22:22
27	08:31 09:16-09:40/24 16:28	07:19 07:46-07:56/10 17:41	06:02 06:30-06:59/29 18:44	05:38 06:19-06:49/30 20:53	04:34 05:09-05:39/30 21:54	04:17 05:16-05:40/24 22:21
28	08:29 09:17-09:40/23 16:31	07:16 07:44-07:58/14 17:44	05:59 06:29-06:59/30 18:46	05:35 06:19-06:48/29 20:55	04:32 05:09-05:39/30 21:56	04:18 05:16-05:41/25 22:21
29	08:27 09:16-09:39/23 16:33		06:56 07:29-07:58/29 19:48	05:33 06:19-06:47/28 20:57	04:31 05:09-05:39/30 21:58	04:18 05:17-05:42/25 22:21
30	08:25 09:17-09:39/22 16:35		06:53 07:28-07:57/29 19:51	05:30 06:19-06:46/27 20:59	04:29 05:09-05:40/31 21:59	04:19 05:16-05:41/25 22:20
31	08:23 09:18-09:39/21 16:38		06:51 07:29-07:56/27 19:53		04:28 05:09-05:39/30 22:01	
Potential sun hours	227	262	365	429	515	539
Sum of minutes with flicker	1396	298	586	482	471	765

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 5 - VESTAS V162-7.2 7200 162.0 !OI hub: 162.0 m (TOT: 243.0 m) (31)
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 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

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

	July	August	September	October	November	December
1	04:20 05:16-05:42/26	05:09	06:15	07:18 08:00-08:17/17	07:28	08:33 12:30-13:08/38
	22:20	21:35	20:17	18:53	16:32	15:37
2	04:21 05:17-05:43/26	05:11	06:17	07:21 07:59-08:19/20	07:30	08:35 12:31-13:09/38
	22:19	21:33	20:15	18:51	16:30	15:36
3	04:22 05:17-05:43/26	05:13	06:19	07:23 07:58-08:21/23	07:32	08:36 12:31-13:10/39
	22:19	21:31	20:12	18:48	16:27	15:35
4	04:23 05:17-05:44/27	05:15	06:21	07:25 07:57-08:22/25	07:34	08:38 11:07-11:15/8 12:31-13:10/39
	22:18	21:29	20:09	18:45	16:25	15:34
5	04:24 05:17-05:44/27	05:17	06:23	07:27 07:57-08:27/30	07:37	08:40 11:06-11:17/11 12:31-13:10/39
	22:17	21:26	20:06	18:42	16:23	15:33
6	04:25 05:17-05:45/28	05:19 06:38-06:42/4	06:25	07:29 07:59-08:29/30	07:39 08:54-09:04/10	08:42 11:04-11:18/14 12:31-13:11/40
	22:17	21:24	20:04	18:40	16:20	15:33
7	04:26 05:17-05:45/28	05:22 06:35-06:46/11	06:28	07:31 08:01-08:30/29	07:41 08:52-09:06/14	08:43 11:04-11:35/31
	22:16	21:22	20:01	18:37	16:18	15:32
8	04:27 05:17-05:46/29	05:24 06:33-06:48/15	06:30 07:27-07:38/11	07:34 08:04-08:32/28	07:44 08:51-09:08/17	08:45 11:02-11:36/32
	22:15	21:19	19:58	18:34	16:16	15:31
9	04:29 05:17-05:46/29	05:26 06:31-06:50/19	06:32 07:25-07:42/17	07:36 08:06-08:32/26	07:46 08:50-09:09/19	08:46 11:03-11:37/34
	22:14	21:17	19:55	18:31	16:14	15:31
10	04:30 05:17-05:46/29	05:28 06:30-06:51/21	06:34 07:23-07:45/22	07:38 08:08-08:32/24	07:48 08:50-09:10/20	08:47 11:04-11:38/34
	22:13	21:15	19:52	18:29	16:12	15:30
11	04:31 05:17-05:47/30	05:30 06:29-06:52/23	06:36 07:22-07:46/24	07:40 08:11-08:32/21	07:51 08:49-09:10/21	08:49 11:04-11:39/35
	22:12	21:12	19:50	18:26	16:10	15:30
12	04:33 05:17-05:47/30	05:32 06:28-06:54/26	06:38 07:21-07:47/26	07:42 08:13-08:31/18	07:53 08:49-09:11/22	08:50 11:04-11:40/36
	22:10	21:10	19:47	18:23	16:08	15:30
13	04:34 05:17-05:47/30	05:34 06:27-06:55/28	06:40 07:20-07:48/28	07:45 08:15-08:31/16	07:55 08:48-09:11/23	08:51 11:04-11:40/36 10:30-10:31/1
	22:09	21:07	19:44	18:20	16:06	15:29
14	04:36 05:18-05:48/30	05:36 06:27-06:55/28	06:42 07:19-07:48/29	07:47 08:17-08:29/12	07:57 08:49-09:12/23	08:52 11:05-11:41/36 10:29-10:34/5
	22:08	21:05	19:41	18:18	16:04	15:29
15	04:37 05:18-05:48/30	05:39 06:26-06:56/30	06:44 07:19-07:48/29	07:49 08:20-08:29/9	08:00 08:49-09:12/23	08:54 11:05-11:42/37 10:29-10:40/11
	22:06	21:02	19:38	18:15	16:02	15:29
16	04:39 05:18-05:48/30	05:41 06:26-06:56/30	06:47 07:18-07:48/30	07:51 08:22-08:27/5	08:02 12:40-12:50/10	08:55 11:05-11:43/38 10:29-10:41/12
	22:05	21:00	19:36	18:12	16:00	15:29
17	04:41 05:19-05:48/29	05:43 06:26-06:57/31	06:49 07:18-07:48/30	07:53	08:04 12:37-12:53/16	08:55 11:05-11:44/39 10:29-10:42/13
	22:03	20:57	19:33	18:10	15:58	15:29
18	04:42 05:21-05:49/28	05:45 06:26-06:57/31	06:51 07:20-07:47/27	07:56 08:51-09:00/9	08:06 12:35-12:56/21	08:56 11:06-11:44/38 10:29-10:43/14
	22:02	20:55	19:30	18:07	15:56	15:29
19	04:44 05:22-05:48/26	05:47 06:26-06:57/31	06:53 07:23-07:47/24	07:58 08:48-09:02/14	08:08 12:33-12:57/24	08:57 11:05-11:44/39 10:28-10:43/15
	22:00	20:52	19:27	18:04	15:54	15:29
20	04:46 05:24-05:48/24	05:49 06:26-06:56/30	06:55 07:25-07:46/21	08:00 08:47-09:03/16	08:11 12:33-12:59/26	08:58 11:06-11:45/39 10:29-10:44/15
	21:59	20:50	19:24	18:02	15:53	15:30
21	04:48 05:25-05:48/23	05:51 06:26-06:56/30	06:57 07:27-07:44/17	08:02 08:46-09:04/18	08:13 12:32-13:00/28	08:58 11:07-11:46/39 10:30-10:45/15
	21:57	20:47	19:21	17:59	15:51	15:30
22	04:50 05:27-05:48/21	05:54 06:27-06:55/28	06:59 07:29-07:43/14	08:05 08:45-09:05/20	08:15 12:32-13:02/30	08:59 11:07-11:46/39 10:30-10:45/15
	21:55	20:44	19:19	17:57	15:49	15:30
23	04:51 05:29-05:48/19	05:56 06:28-06:55/27	07:01 07:31-07:40/9	08:07 08:45-09:04/19	08:17 12:31-13:02/31	09:00 11:07-11:46/39 10:31-10:46/15
	21:53	20:42	19:16	17:54	15:48	15:31
24	04:53 05:30-05:47/17	05:58 06:30-06:54/24	07:03 07:33-07:36/3	08:09 08:44-09:04/20	08:19 12:31-13:04/33	09:00 11:08-11:47/39 10:31-10:46/15
	21:51	20:39	19:13	17:52	15:46	15:32
25	04:55 05:32-05:46/14	06:00 06:32-06:52/20	07:06	07:11 07:44-08:04/20	08:21 12:30-13:04/34	09:00 11:09-11:47/38 10:32-10:46/14
	21:50	20:36	19:10	16:49	15:45	15:32
26	04:57 05:34-05:46/12	06:02 06:34-06:51/17	07:08	07:14 07:46-08:04/18	08:23 12:30-13:05/35	09:01 11:09-11:47/38 10:32-10:46/14
	21:48	20:34	19:07	16:47	15:43	15:33
27	04:59 05:36-05:45/9	06:04 06:36-06:49/13	07:10	07:16 07:49-08:03/14	08:25 12:30-13:06/36	09:01 11:10-11:48/38 10:33-10:46/13
	21:46	20:31	19:05	16:44	15:42	15:34
28	05:01 05:37-05:43/6	06:06 06:38-06:46/8	07:12	07:18 07:51-08:02/11	08:27 12:30-13:07/37	09:01 11:10-11:48/38 10:34-10:46/12
	21:44	20:28	19:02	16:42	15:41	15:35
29	05:03 05:39-05:41/2	06:08	07:14	07:21 07:54-08:02/8	08:29 12:30-13:07/37	09:01 11:11-11:49/38 10:36-10:46/10
	21:42	20:26	18:59	16:39	15:40	15:36
30	05:05	06:11	07:16 08:03-08:14/11	07:23 07:56-08:00/4	08:31 12:30-13:07/37	09:01 11:11-11:48/37 10:36-10:40/4
	21:40	20:23	18:56	16:37	15:38	15:37
31	05:07	06:13		07:25		09:01
	21:37	20:20		16:34		15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	685	525	372	524	806	2435

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 6 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (29)
 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 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

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

	January		February		March		April		May		June	
1	09:00	13:47-14:09/22	08:21	08:54-09:22/28	07:14	08:09-08:44/35	06:48	08:00-08:37/37	05:28	06:07-06:30/23	04:27	05:47-06:28/41
	15:40	10:47-10:50/3	16:40		17:46		19:55		21:01		22:03	
2	09:00	09:43-09:44/1	08:19	08:51-09:22/31	07:11	08:09-08:41/32	06:45	08:01-08:35/34	05:25	06:06-06:32/26	04:26	05:47-06:27/40
	15:41	13:48-14:10/22	16:42		17:48		19:57		21:04		22:04	
3	09:00	09:42-09:45/3	08:17	08:49-09:22/33	07:08	08:10-08:38/28	06:42	08:01-08:34/33	05:23	06:04-06:32/28	04:25	05:49-06:27/38
	15:42	13:48-14:09/21	16:45		17:50		19:59		21:06		22:06	
4	08:59	09:41-09:46/5	08:15	08:46-09:22/36	07:05	08:12-08:32/20	06:39	08:03-08:33/30	05:20	06:03-06:33/30	04:23	05:49-06:25/36
	15:44	13:49-14:09/20	16:47		17:53		20:02		21:08		22:07	
5	08:59	09:40-09:47/7	08:13	08:44-09:22/38	07:03	08:13-08:30/17	06:37	08:04-08:31/27	05:18	05:57-06:34/37	04:22	05:49-06:24/35
	15:45	13:49-14:09/20	16:49		17:55		20:04		21:10		22:08	
6	08:58	09:40-09:49/9	08:10	08:42-09:22/40	07:00	08:15-08:27/12	06:34	08:05-08:28/23	05:16	05:54-06:35/41	04:21	06:17-06:21/4
	15:47	13:50-14:09/19	16:52		17:57		20:06		21:12		22:10	05:50-06:14/24
7	08:57	09:39-09:50/11	08:08	08:39-09:20/41	06:57		06:31	08:07-08:25/18	05:13	05:52-06:35/43	04:20	05:50-06:14/24
	15:48	13:51-14:09/18	16:54		18:00		20:08		21:14		22:11	
8	08:57	09:37-09:50/13	08:06	08:38-09:20/42	06:55		06:28	08:11-08:21/10	05:11	05:50-06:36/46	04:20	05:51-06:14/23
	15:50	13:52-14:09/17	16:57		18:02		20:11		21:17		22:12	
9	08:56	09:36-09:51/15	08:04	08:38-09:17/39	06:52		06:26		05:09	05:49-06:36/47	04:19	05:51-06:13/22
	15:51	13:53-14:09/16	16:59		18:04		20:13		21:19		22:13	
10	08:55	09:35-09:52/17	08:01	08:38-09:10/32	06:49		06:23		05:07	05:47-06:35/48	04:18	05:52-06:14/22
	15:53	13:55-14:09/14	17:01	09:11-09:14/3	18:06		20:15		21:21		22:14	
11	08:54	09:34-09:53/19	07:59	08:38-09:09/31	06:46		06:20		05:04	05:47-06:36/49	04:17	05:53-06:13/20
	15:55	13:56-14:09/13	17:04		18:09		20:17		21:23		22:15	
12	08:53	09:33-09:53/20	07:57	08:32-09:09/37	06:44		06:17		05:02	05:46-06:36/50	04:17	05:53-06:13/20
	15:57	13:58-14:08/10	17:06		18:11		20:19		21:25		22:16	
13	08:52	09:34-09:54/20	07:54	08:28-09:06/38	06:41	07:20-07:35/15	06:15		05:00	05:45-06:36/51	04:16	05:54-06:13/19
	15:59	14:01-14:06/5	17:08		18:13		20:22		21:27		22:17	
14	08:51	09:33-09:54/21	07:52	08:26-09:03/37	06:38	07:16-07:37/21	06:12		04:58	05:45-06:36/51	04:16	05:54-06:12/18
	16:01		17:11		18:15	07:04-07:10/6	20:24		21:29		22:18	
15	08:50	09:34-09:55/21	07:49	08:25-09:00/35	06:35	07:15-07:40/25	06:09		04:56	05:44-06:36/52	04:16	05:55-06:12/17
	16:03		17:13		18:18	07:02-07:13/11	20:26		21:31		22:19	
16	08:48	09:34-09:55/21	07:47	08:20-08:54/34	06:33	06:59-07:41/42	06:07		04:54	05:44-06:36/51	04:15	05:56-06:12/16
	16:05		17:16		18:20		20:28		21:33		22:19	
17	08:47	09:34-09:55/21	07:44	08:16-08:51/35	06:30	06:56-07:42/46	06:04		04:52	05:43-06:36/52	04:15	05:56-06:12/16
	16:07		17:18		18:22		20:30		21:36		22:20	
18	08:46	09:35-09:56/21	07:42	08:14-08:48/34	06:27	06:55-07:42/47	06:01		04:50	05:44-06:36/52	04:15	05:56-06:12/16
	16:09		17:20		18:24		20:33		21:38		22:20	
19	08:44	09:35-09:56/21	07:39	08:13-08:49/36	06:24	06:54-07:43/49	05:59		04:48	05:44-06:36/51	04:15	05:57-06:12/15
	16:11		17:23		18:26		20:35		21:40		22:21	
20	08:43	09:36-09:56/20	07:37	08:11-08:49/38	06:21	06:54-07:43/49	05:56		04:46	05:43-06:34/51	04:15	05:57-06:12/15
	16:13		17:25		18:29		20:37		21:41		22:21	
21	08:41	09:36-09:56/20	07:34	08:11-08:49/38	06:19	06:54-07:44/50	05:53		04:44	05:44-06:36/51	04:15	05:57-06:12/15
	16:15		17:27		18:31		20:39		21:43		22:21	
22	08:39	09:37-09:55/18	07:32	08:10-08:49/39	06:16	06:55-07:44/49	05:51		04:42	05:44-06:34/50	04:15	05:57-06:12/15
	16:17		17:30		18:33		20:41		21:45		22:22	
23	08:38	09:38-09:55/17	07:29	08:09-08:49/40	06:13	06:55-07:44/49	05:48		04:41	05:44-06:34/50	04:15	05:58-06:13/15
	16:19		17:32		18:35		20:44		21:47		22:22	
24	08:36	09:39-09:55/16	07:27	08:09-08:49/40	06:10	06:56-07:43/47	05:45		04:39	05:44-06:33/49	04:16	05:58-06:13/15
	16:22	09:11-09:14/3	17:34		18:37		20:46		21:49		22:22	
25	08:34	09:40-09:54/14	07:24	08:09-08:48/39	06:07	06:59-07:43/44	05:43		04:37	05:44-06:33/49	04:16	05:57-06:13/16
	16:24	09:09-09:16/7	17:37		18:40		20:48		21:51		22:22	
26	08:33	09:42-09:53/11	07:21	08:08-08:47/39	06:05	07:01-07:43/42	05:40		04:36	05:45-06:32/47	04:17	05:58-06:14/16
	16:26	09:07-09:18/11	17:39		18:42		20:50		21:53		22:22	
27	08:31	09:45-09:50/5	07:19	08:08-08:46/38	06:02	07:00-07:42/42	05:38		04:34	05:45-06:31/46	04:17	05:57-06:14/17
	16:28	09:05-09:19/14	17:41		18:44		20:53		21:54		22:21	
28	08:29	09:03-09:20/17	07:16	08:09-08:46/37	05:59	07:00-07:41/41	05:35	06:17-06:22/5	04:32	05:45-06:31/46	04:18	05:58-06:15/17
	16:31		17:44		18:46		20:55		21:56		22:21	
29	08:27	09:00-09:20/20			06:56	08:00-08:40/40	05:33	06:11-06:26/15	04:31	05:46-06:31/45	04:18	05:58-06:16/18
	16:33				19:48		20:57		21:58		22:21	
30	08:25	08:58-09:21/23			06:53	07:59-08:38/39	05:30	06:09-06:28/19	04:30	05:47-06:30/43	04:19	05:57-06:16/19
	16:35				19:51		20:59		21:59		22:20	
31	08:23	08:56-09:22/26			06:51	08:00-08:38/38			04:28	05:46-06:28/42		
	16:38				19:53				22:01			
Potential sun hours	227		262		365		429		515		539	
Sum of minutes with flicker	728		1028		936		251		1397		644	

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 6 - VESTAS V162-7.2 7200 162.0 IO! hub: 162.0 m (TOT: 243.0 m) (29)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	July		August		September		October		November		December	
1	04:20	05:57-06:17/20	05:09	05:57-06:46/49	06:15		07:18	08:02-08:11/9	07:28	08:08-08:45/37	08:33	09:16-09:35/19
	22:20		21:35		20:17		18:53		16:32		15:37	13:38-13:50/12
2	04:21	05:57-06:18/21	05:11	05:57-06:46/49	06:17		07:21		07:30	08:07-08:47/40	08:35	09:18-09:35/17
	22:19		21:33		20:15		18:51		16:30		15:36	13:38-13:52/14
3	04:22	05:57-06:18/21	05:13	05:57-06:45/48	06:19		07:23		07:32	08:08-08:49/41	08:36	09:20-09:35/15
	22:19		21:31		20:12		18:48		16:27		15:35	13:38-13:53/15
4	04:23	05:57-06:19/22	05:15	05:58-06:45/47	06:21	08:08-08:18/10	07:25		07:34	08:09-08:50/41	08:38	09:22-09:35/13
	22:18		21:29		20:09		18:45		16:25		15:34	13:37-13:55/18
5	04:24	05:57-06:20/23	05:17	06:00-06:45/45	06:23	08:04-08:22/18	07:27		07:37	08:12-08:51/39	08:40	09:24-09:35/11
	22:17		21:26		20:06		18:42		16:23		15:34	13:36-13:55/19
6	04:25	05:56-06:20/24	05:20	06:01-06:44/43	06:26	08:01-08:24/23	07:29		07:39	08:14-08:51/37	08:42	09:25-09:34/9
	22:17		21:24		20:04		18:40		16:21		15:33	13:36-13:56/20
7	04:26	06:22-06:29/7	05:22	06:04-06:44/40	06:28	07:59-08:26/27	07:31	08:53-08:59/6	07:41	08:17-08:52/35	08:43	09:27-09:34/7
	22:16	05:56-06:21/25	21:22		20:01		18:37		16:18		15:32	13:37-13:57/20
8	04:27	05:56-06:31/35	05:24	06:12-06:43/31	06:30	07:57-08:27/30	07:34	08:50-09:04/14	07:44	08:20-08:53/33	08:45	09:29-09:34/5
	22:15		21:19	06:08-06:11/3	19:58		18:34		16:16		15:31	13:37-13:58/21
9	04:29	05:55-06:33/38	05:26	06:13-06:42/29	06:32	07:55-08:28/33	07:36	08:47-09:06/19	07:46	08:22-08:53/31	08:46	09:31-09:34/3
	22:14		21:17		19:55		18:31		16:14		15:31	13:37-13:58/21
10	04:30	05:55-06:34/39	05:28	06:14-06:41/27	06:34	07:54-08:28/34	07:38	08:45-09:09/24	07:48	08:25-08:53/28	08:47	09:32-09:34/2
	22:13		21:15		19:52		18:29		16:12		15:30	13:37-13:59/22
11	04:31	05:55-06:36/41	05:30	06:15-06:40/25	06:36	07:53-08:29/36	07:40	08:44-09:13/29	07:51	08:27-08:53/26	08:49	09:33-13:59/22
	22:11		21:12		19:50		18:26		16:10		15:30	10:39-10:40/1
12	04:33	05:55-06:37/42	05:32	06:16-06:38/22	06:38	07:52-08:29/37	07:42	08:43-09:16/33	07:53	08:30-08:53/23	08:50	13:38-14:00/22
	22:10		21:10		19:47		18:23		16:08		15:30	10:37-10:42/5
13	04:34	05:54-06:37/43	05:34	06:18-06:36/18	06:40	07:51-08:30/39	07:45	08:42-09:17/35	07:55	08:32-08:52/20	08:51	13:38-14:00/22
	22:09		21:07		19:44		18:20		16:06		15:29	10:36-10:44/8
14	04:36	05:55-06:39/44	05:36	06:21-06:33/12	06:42	07:50-08:30/40	07:47	08:41-09:18/37	07:57	08:35-08:52/17	08:52	13:38-14:01/23
	22:08		21:05		19:41		18:18		16:04		15:29	10:36-10:45/9
15	04:38	05:54-06:39/45	05:39		06:44	07:49-08:30/41	07:49	08:41-09:19/38	08:00	09:18-09:23/5	08:54	13:39-14:02/23
	22:06		21:02		19:38		18:15		16:02	08:38-08:52/14	15:29	10:36-10:46/10
16	04:39	05:55-06:41/46	05:41		06:47	07:49-08:30/41	07:51	08:40-09:20/40	08:02	09:15-09:26/11	08:55	13:39-14:02/23
	22:05		21:00		19:36		18:12		16:00	08:40-08:51/11	15:29	10:36-10:47/11
17	04:41	05:54-06:41/47	05:43		06:49	07:48-08:30/42	07:53	08:41-09:21/40	08:04	09:14-09:28/14	08:55	13:40-14:03/23
	22:03		20:57		19:33		18:10		15:58	08:43-08:50/7	15:29	10:37-10:48/11
18	04:42	05:54-06:42/48	05:45		06:51	07:48-08:30/42	07:56	08:40-09:20/40	08:06	09:13-09:29/16	08:56	13:39-14:03/24
	22:02		20:55		19:30		18:07		15:56	08:45-08:48/3	15:29	10:37-10:49/12
19	04:44	05:54-06:42/48	05:47		06:53	07:44-08:31/47	07:58	08:40-09:20/40	08:08	09:13-09:30/17	08:57	13:40-14:03/23
	22:00		20:52		19:27		18:05		15:54		15:29	10:36-10:48/12
20	04:46	05:54-06:43/49	05:49		06:55	07:42-08:30/48	08:00	08:41-09:20/39	08:11	09:12-09:30/18	08:58	13:41-14:04/23
	21:59		20:50		19:24		18:02		15:53		15:30	10:37-10:49/12
21	04:48	05:53-06:43/50	05:51		06:57	07:40-08:30/50	08:02	08:41-09:20/39	08:13	09:12-09:32/20	08:58	13:42-14:05/23
	21:57		20:47		19:21		17:59		15:51		15:30	10:38-10:50/12
22	04:50	05:54-06:44/50	05:54		06:59	07:39-08:29/50	08:05	08:43-09:20/37	08:15	09:12-09:32/20	08:59	13:42-14:05/23
	21:55		20:44		19:19		17:57		15:49		15:30	10:38-10:50/12
23	04:51	05:54-06:45/51	05:56		07:01	07:38-08:28/50	08:07	08:43-09:19/36	08:17	09:12-09:32/20	09:00	13:42-14:05/23
	21:53		20:42		19:16		17:54		15:48		15:31	10:39-10:51/12
24	04:53	05:53-06:45/52	05:58		07:04	07:38-08:27/49	08:09	08:44-09:18/34	08:19	09:12-09:33/21	09:00	13:43-14:06/23
	21:51		20:39		19:13		17:52		15:46		15:32	10:39-10:51/12
25	04:55	05:54-06:45/51	06:00		07:06	07:37-08:25/48	07:11	07:47-08:22/35	08:21	09:12-09:33/21	09:00	13:43-14:06/23
	21:50		20:36		19:10		16:49		15:45		15:32	10:40-10:52/12
26	04:57	05:54-06:46/52	06:02		07:08	07:37-08:24/47	07:14	07:51-08:24/33	08:23	09:13-09:34/21	09:01	13:44-14:07/23
	21:48		20:34		19:07		16:47		15:44		15:33	10:40-10:52/12
27	04:59	05:55-06:46/51	06:04		07:10	07:39-08:22/43	07:16	07:54-08:31/37	08:25	09:13-09:34/21	09:01	13:44-14:07/23
	21:46		20:31		19:05		16:44		15:42		15:34	10:41-10:52/11
28	05:01	05:54-06:46/52	06:06		07:12	07:55-08:21/26	07:18	07:55-08:33/38	08:27	09:13-09:34/21	09:01	13:45-14:08/23
	21:44		20:28		19:02	07:42-07:54/12	16:42		15:41		15:35	10:42-10:52/10
29	05:03	05:55-06:46/51	06:09		07:14	07:56-08:19/23	07:21	07:58-08:36/38	08:29	09:14-09:34/20	09:01	13:46-14:08/22
	21:42		20:26		18:59	07:44-07:52/8	16:39		15:40	13:41-13:46/5	15:36	10:43-10:52/9
30	05:05	05:55-06:46/51	06:11		07:16	07:58-08:16/18	07:23	08:07-08:37/30	08:31	09:14-09:34/20	09:01	13:45-14:08/23
	21:40		20:23		18:56	07:46-07:49/3	16:37	08:02-08:06/4	15:38	13:39-13:49/10	15:37	10:43-10:51/8
31	05:07	05:56-06:46/50	06:13				07:25	08:07-08:39/32			09:01	13:46-14:09/23
	21:37		20:20				16:34				15:38	10:45-10:51/6
Potential sun hours	538		474		386		321		241		207	
Sum of minutes with flicker	1289		488		1015		836		784		970	

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 7 - VESTAS V162-7.2 7200 162.0 !OI hub: 162.0 m (TOT: 243.0 m) (40)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January	February	March	April	May	June
1	09:00 09:43-10:05/22 15:40	08:21 09:24-10:02/38 16:40	07:14 09:37-11:04/87 17:46	06:48 10:43-11:31/48 07:53-08:35/42 19:55 08:37-08:56/19	05:28 21:01	04:27 22:03
2	09:00 09:43-10:06/23 15:41	08:19 09:25-10:03/38 16:42	07:11 09:36-11:04/88 17:48	06:45 10:45-11:26/41 07:52-08:34/42 19:57 08:40-08:51/11	05:25 21:04	04:26 22:04
3	09:00 09:42-10:07/25 15:42	08:17 09:25-10:03/38 16:45	07:08 09:35-11:04/89 17:51	06:42 10:48-11:21/33 19:59 07:52-08:33/41	05:23 21:06	04:25 22:06
4	08:59 09:41-10:07/26 15:44	08:15 09:25-10:03/38 16:47	07:05 09:34-11:04/90 17:53	06:39 10:53-11:16/23 20:02 07:53-08:33/40	05:21 21:08	04:23 22:07
5	08:59 09:40-10:08/28 15:45	08:13 09:26-10:03/37 16:49	07:03 09:35-11:05/90 17:55	06:37 07:53-08:32/39 20:04	05:18 21:10	04:22 22:08
6	08:58 09:39-10:08/29 15:47	08:10 09:26-10:03/37 16:52	07:00 09:34-11:05/91 17:57 07:49-08:00/11	06:34 07:53-08:31/38 20:06	05:16 21:12	04:21 22:10
7	08:57 09:38-10:09/31 15:48	08:08 09:26-10:03/37 16:54	06:57 09:33-11:05/92 18:00 07:44-08:04/20	06:31 07:53-08:29/36 20:08	05:13 21:14	04:21 22:11
8	08:57 09:38-10:10/32 15:50	08:06 10:11-10:32/21 16:57 09:27-10:03/36	06:55 09:33-11:04/91 18:02 07:41-08:06/25	06:28 07:54-08:29/35 20:11	05:11 21:17	04:20 22:12
9	08:56 09:38-10:11/33 15:52	08:04 10:06-10:36/30 16:59 09:27-10:02/35	06:52 09:32-11:04/92 18:04 07:39-08:08/29	06:26 07:55-08:27/32 20:13	05:09 21:19	04:19 22:13
10	08:55 09:38-10:12/34 15:53	08:01 10:04-10:40/36 17:01 09:29-10:02/33	06:49 09:33-11:05/92 18:06 07:38-08:10/32	06:23 07:56-08:25/29 20:15	05:07 21:21	04:18 22:14
11	08:54 09:39-10:12/33 15:55	07:59 09:29-10:43/74 17:04	06:46 09:32-11:04/92 18:09 07:36-08:11/35	06:20 07:58-08:23/25 20:17	05:04 21:23	04:18 22:15
12	08:53 09:38-10:12/34 15:57	07:57 09:30-10:45/75 17:06	06:44 09:32-11:03/91 18:11 07:34-08:12/38	06:17 07:59-08:20/21 20:19	05:02 21:25	04:17 22:16
13	08:52 09:39-10:13/34 15:59	07:54 09:32-10:48/76 17:08	06:41 09:31-11:03/92 18:13 07:33-08:12/39	06:15 08:02-08:16/14 20:22	05:00 21:27	04:16 22:17
14	08:51 09:38-10:13/35 16:01	07:52 09:34-10:49/75 17:11 08:21-08:24/3	06:38 09:31-11:02/91 18:15 07:32-08:12/40	06:12 20:24	04:58 21:29	04:16 22:18
15	08:50 09:39-10:14/35 16:03	07:49 09:37-10:52/75 17:13 08:19-08:27/8	06:35 09:32-11:02/90 18:18 07:32-08:14/42	06:09 20:26	04:56 21:31	04:16 22:18
16	08:48 09:39-10:14/35 16:05	07:47 09:40-10:53/73 17:16 08:16-08:28/12	06:33 09:32-11:01/89 18:20 07:31-08:14/43	06:07 20:28	04:54 21:33	04:15 22:19
17	08:47 09:38-10:14/36 16:07	07:44 09:49-10:54/65 17:18 08:13-08:29/16	06:30 09:32-11:00/88 18:22 07:30-08:14/44	06:04 20:30	04:52 21:36	04:15 22:20
18	08:46 09:36-10:15/39 16:09	07:42 09:48-10:56/68 17:20 08:12-08:30/18	06:27 09:31-10:59/88 07:14-07:22/8 18:24 07:29-08:13/44	06:01 20:33	04:50 21:38	04:15 22:20
19	08:44 09:33-10:15/42 16:11	07:39 09:46-10:57/71 17:23 08:11-08:30/19	06:24 09:31-10:58/87 07:09-07:27/18 18:26 07:29-08:13/44	05:59 20:35	04:48 21:40	04:15 22:21
20	08:43 09:31-10:15/44 16:13	07:37 09:45-10:58/73 17:25 08:10-08:30/20	06:21 09:31-10:56/85 18:29 07:05-08:12/67	05:56 20:37	04:46 21:41	04:15 22:21
21	08:41 09:30-10:15/45 16:15	07:34 09:44-10:59/75 17:27 08:11-08:30/19	06:19 09:33-10:56/83 18:31 07:04-08:13/69	05:53 20:39	04:44 21:43	04:15 22:21
22	08:39 09:29-10:15/46 16:17	07:32 09:43-11:00/77 17:30 08:11-08:30/19	06:16 09:33-10:54/81 18:33 07:02-08:12/70	05:51 20:41	04:42 21:45	04:15 22:21
23	08:38 09:28-10:14/46 16:19	07:29 09:42-11:00/78 17:32 08:11-08:29/18	06:13 09:33-10:52/79 18:35 07:00-08:11/71	05:48 20:44	04:41 21:47	04:15 22:22
24	08:36 09:27-10:14/47 16:22	07:27 09:41-11:02/81 17:34 08:12-08:29/17	06:10 09:33-10:51/78 18:38 06:58-08:10/72	05:45 20:46	04:39 21:49	04:16 22:22
25	08:34 09:27-10:13/46 16:24	07:24 09:40-11:02/82 17:37 08:13-08:27/14	06:07 09:34-10:49/75 18:40 06:57-08:09/72	05:43 20:48	04:37 21:51	04:16 22:22
26	08:33 09:26-10:12/46 16:26	07:21 09:39-11:03/84 17:39 08:14-08:25/11	06:05 09:34-10:46/72 18:42 06:57-08:08/71	05:40 20:50	04:36 21:53	04:17 22:22
27	08:31 09:26-10:11/45 16:28	07:19 09:38-11:03/85 17:41	06:02 09:36-10:45/69 18:44 06:55-08:07/72	05:38 20:53	04:34 21:54	04:17 22:21
28	08:29 09:26-10:08/42 16:31	07:16 09:38-11:04/86 17:44	05:59 09:37-10:43/66 18:46 06:54-08:05/71	05:35 20:55	04:32 21:56	04:18 22:21
29	08:27 09:25-10:02/37 16:33		06:56 10:38-11:40/62 19:49 07:54-09:03/69	05:33 20:57	04:31 21:58	04:18 22:21
30	08:25 09:25-10:01/36 16:35		06:53 10:39-11:37/58 19:51 07:53-09:01/68	05:30 20:59	04:30 21:59	04:19 22:20
31	08:23 09:25-10:02/37 16:38		06:51 10:41-11:34/53 19:53 07:53-08:59/66		04:28 22:01	
Potential sun hours	227	262	365	429	515	539
Sum of minutes with flicker	1123	2021	3921	609	0	0

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 7 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (40)
 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 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

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

	July	August	September	October	November	December
1	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
2	04:21 22:19	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:36 15:35
4	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:34
6	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:41 15:33
7	04:26 22:16	05:22 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	04:27 22:15	05:24 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	04:29 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
10	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:47 15:30
11	04:32 22:11	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:30
13	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:06	08:51 15:29
14	04:36 22:08	05:37 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:52 15:29
15	04:38 22:06	05:39 21:02	06:45 19:38	07:49 18:15	08:00 16:02	08:53 15:29
16	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:54 15:29
17	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:55 15:29
18	04:43 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:56 15:29
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:08 15:55	08:57 15:29
20	04:46 21:58	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	04:50 21:55	05:54 20:44	06:59 19:19	08:05 17:57	08:15 15:50	08:59 15:31
23	04:52 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	04:53 21:51	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	04:55 21:50	06:00 20:36	07:06 19:10	08:11 17:49	08:21 15:45	09:00 15:32
26	04:57 21:48	06:02 20:34	07:08 19:07	08:14 17:46	08:23 15:44	09:01 15:33
27	04:59 21:46	06:04 20:31	07:10 19:05	08:16 17:44	08:25 15:42	09:01 15:34
28	05:01 21:44	06:06 20:28	07:12 19:02	08:18 17:42	08:27 15:41	09:01 15:35
29	05:03 21:42	06:09 20:26	07:14 18:59	08:21 17:39	08:29 15:40	09:01 15:36
30	05:05 21:40	06:11 20:23	07:16 18:56	08:23 17:37	08:31 15:38	09:01 15:37
31	05:07 21:37	06:13 20:20	07:18 18:54	08:25 17:34	08:33 15:36	09:01 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	0	36	3219	2946	1255	639

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

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Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 8 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (38)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January	February	March	April	May	June
1	09:00 15:40	08:21 16:40	07:13 17:46	07:44-08:05/21 17:46	06:48 19:55	07:16-07:31/15 21:01
2	09:00 15:41	08:19 16:42	07:11 17:48	07:42-08:06/24 17:48	06:45 19:57	07:14-07:32/18 21:04
3	09:00 15:42	08:17 16:45	07:08 17:50	07:40-08:06/26 17:50	06:42 19:59	07:12-07:41/29 21:06
4	08:59 15:44	08:15 16:47	07:05 17:53	07:39-08:06/27 17:53	06:39 20:02	07:11-07:45/34 21:08
5	08:59 15:45	08:13 16:49	07:03 17:55	07:39-08:07/28 17:55	06:37 20:04	07:10-07:47/37 21:10
6	08:58 15:47	08:10 16:52	07:00 17:57	07:39-08:07/28 17:57	06:34 20:06	07:09-07:49/40 21:12
7	08:57 15:48	08:08 16:54	06:57 18:00	07:38-08:06/28 18:00	06:31 20:08	06:58-07:50/52 21:14
8	08:57 15:50	08:06 16:57	06:55 18:02	07:38-08:05/27 18:02	06:28 20:10	06:56-07:51/55 21:17
9	08:56 15:51	08:04 16:59	06:52 18:04	07:38-08:04/26 18:04	06:26 20:13	06:54-07:52/58 21:19
10	08:55 15:53	08:01 17:01	06:49 18:06	07:39-08:04/25 18:06	06:23 20:15	06:52-07:52/60 21:21
11	08:54 15:55	07:59 17:04	06:46 18:09	07:39-08:03/24 18:09	06:20 20:17	06:52-07:53/61 21:23
12	08:53 15:57	07:57 17:06	06:44 18:11	07:39-08:02/23 18:11	06:17 20:19	06:51-07:53/62 21:25
13	08:52 15:59	07:54 17:08	06:41 18:13	07:40-08:00/20 18:13	06:15 20:22	06:50-07:53/63 21:27
14	08:51 16:01	07:52 17:11	06:38 18:15	07:41-07:58/17 18:15	06:12 20:24	06:50-07:54/64 21:29
15	08:50 16:03	07:49 17:13	06:35 18:18	07:44-07:56/12 18:18	06:09 20:26	06:49-07:53/64 21:31
16	08:48 16:05	07:47 17:16	06:32 18:20	07:44-07:56/12 18:20	06:07 20:28	06:49-07:53/64 21:33
17	08:47 16:07	07:44 17:18	06:30 18:22	07:44-07:56/12 18:22	06:04 20:30	06:49-07:53/64 21:35
18	08:46 16:09	07:42 17:20	06:27 18:24	07:44-07:56/12 18:24	06:01 20:33	06:49-07:52/63 21:37
19	08:44 16:11	07:39 17:23	06:24 18:26	07:44-07:56/12 18:26	05:59 20:35	06:50-07:53/63 21:39
20	08:43 16:13	07:37 17:25	06:21 18:29	07:44-07:56/12 18:29	05:56 20:37	06:50-07:52/62 21:41
21	08:41 16:15	07:34 17:27	06:19 18:31	07:44-07:56/12 18:31	05:53 20:39	06:52-07:52/60 21:43
22	08:39 16:17	07:32 17:30	06:16 18:33	07:44-07:56/12 18:33	05:51 20:41	06:53-07:51/58 21:45
23	08:38 16:19	07:29 17:32	06:13 18:35	07:44-07:56/12 18:35	05:48 20:44	07:07-07:50/43 21:47
24	08:36 16:22	07:27 17:34	06:10 18:37	07:44-07:56/12 18:37	05:45 20:46	07:07-07:49/42 21:49
25	08:34 16:24	07:24 17:37	06:07 18:40	07:44-07:56/12 18:40	05:43 20:48	07:08-07:49/41 21:51
26	08:33 16:26	07:21 17:39	06:05 18:42	07:44-07:56/12 18:42	05:40 20:50	07:08-07:47/39 21:53
27	08:31 16:28	07:19 17:41	06:02 18:44	07:44-07:56/12 18:44	05:38 20:52	07:09-07:46/37 21:54
28	08:29 16:31	07:16 17:44	05:59 18:46	07:44-07:56/12 18:46	05:35 20:55	07:10-07:45/35 21:56
29	08:27 16:33		06:56 19:48	07:44-07:56/12 19:48	05:33 20:57	07:10-07:43/33 21:58
30	08:25 16:35		06:53 19:51	07:44-07:56/12 19:51	05:30 20:59	07:12-07:42/30 21:59
31	08:23 16:38		06:51 19:53	07:20-07:29/9 19:53		04:28 22:01
Potential sun hours	227	262	365	429	515	539
Sum of minutes with flicker	0	406	365	1457	82	0

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 8 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (38)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	July	August	September	October	November	December
1	04:20 22:20	05:09 21:35	06:15 20:17	06:51-07:52/61 18:53	07:18 16:32	08:02-08:16/14 15:37
2	04:21 22:19	05:11 21:33	06:17 20:15	06:51-07:51/60 18:51	07:21 16:30	08:17-08:41/24 15:36
3	04:22 22:19	05:13 21:31	06:19 20:12	06:52-07:50/58 18:48	07:23 16:27	08:16-08:41/25 15:35
4	04:23 22:18	05:15 21:29	06:21 20:09	06:53-07:48/55 18:45	07:25 16:25	08:16-08:42/26 15:34
5	04:24 22:17	05:17 21:26	06:23 20:06	06:55-07:47/52 18:42	07:27 16:23	08:15-08:42/27 15:34
6	04:25 22:17	05:20 21:24	06:25 20:04	07:05-07:45/40 18:40	07:29 16:21	08:14-08:42/28 15:33
7	04:26 22:16	05:22 21:22	06:28 20:01	07:05-07:42/37 18:37	07:31 16:18	08:14-08:42/28 15:32
8	04:27 22:15	05:24 21:19	06:30 19:58	07:05-07:40/35 18:34	07:34 16:16	08:14-08:42/28 15:31
9	04:29 22:14	05:26 21:17	06:32 19:55	07:06-07:36/30 18:31	07:36 16:14	08:14-08:42/28 15:31
10	04:30 22:13	05:28 21:15	06:34 19:52	07:07-07:26/19 18:29	07:38 16:12	08:14-08:41/27 15:30
11	04:31 22:11	05:30 21:12	06:36 19:50	07:08-07:24/16 18:26	07:40 16:10	08:15-08:39/24 15:30
12	04:33 22:10	05:32 21:10	06:38 19:47	07:10-07:21/11 18:23	07:42 16:08	08:16-08:39/23 15:30
13	04:34 22:09	05:34 21:07	06:40 19:44	07:12-07:11/10 18:20	07:45 16:06	08:17-08:37/20 15:29
14	04:36 22:08	05:36 21:05	06:42 19:41	07:14-07:52/33 18:18	07:47 16:04	08:18-08:35/17 15:29
15	04:38 22:06	05:39 21:02	06:44 19:38	07:17-07:53/36 18:15	07:49 16:02	08:21-08:34/13 15:29
16	04:39 22:05	05:41 21:00	06:47 19:36	07:20-07:54/38 18:12	07:51 16:00	08:25-08:28/3 15:29
17	04:41 22:03	05:43 20:57	06:49 19:33	07:23-07:55/40 18:10	07:53 15:58	09:00-09:02/2 15:29
18	04:42 22:02	05:45 20:55	06:51 19:30	07:26-07:55/41 18:07	07:56 15:56	08:55-09:06/11 15:29
19	04:44 22:00	05:47 20:52	06:53 19:27	07:29-07:56/42 18:05	07:58 15:54	08:52-09:07/15 15:29
20	04:46 21:58	05:49 20:49	06:55 19:24	07:32-07:11/10 18:02	08:00 15:53	08:52-09:13/21 15:30
21	04:48 21:57	05:51 20:47	06:57 19:21	07:35-07:56/58 17:59	08:02 15:51	08:50-09:15/25 15:30
22	04:50 21:55	05:54 20:44	06:59 19:19	07:38-07:56/60 17:57	08:05 15:49	08:50-09:17/27 15:30
23	04:51 21:53	05:56 20:42	07:01 19:16	07:41-07:56/61 17:54	08:07 15:48	08:49-09:17/28 15:31
24	04:53 21:51	05:58 20:39	07:03 19:13	07:44-07:56/62 17:52	08:09 15:46	08:48-09:17/29 15:32
25	04:55 21:50	06:00 20:36	07:06 19:10	07:47-07:56/63 17:50	07:11 15:45	07:49-08:18/29 15:32
26	04:57 21:48	06:02 20:34	07:08 19:07	07:50-07:56/64 17:47	07:14 15:44	07:48-08:18/30 15:33
27	04:59 21:46	06:04 20:31	07:10 19:05	07:53-07:56/64 17:44	07:16 15:42	07:49-08:19/30 15:34
28	05:01 21:44	06:06 20:28	07:12 19:02	08:27-08:35/8 16:42	07:18 15:41	07:51-08:18/27 15:35
29	05:03 21:42	06:08 20:26	07:14 18:59	08:23-08:38/15 16:39	07:21 15:40	07:54-08:18/24 15:36
30	05:05 21:40	06:11 20:23	07:16 18:56	08:21-08:39/18 16:37	07:23 15:38	07:56-08:17/21 15:37
31	05:07 21:37	06:13 20:20	07:18 18:53	08:21-08:39/18 16:34	07:25 15:37	07:59-08:17/18 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	0	1088	518	699	31	0

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 9 - VESTAS V162-7.2 7200 162.0 !OI hub: 162.0 m (TOT: 243.0 m) (30)
 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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January		February		March	April		May		June	
1	09:00	11:58-12:14/16	08:21	07:13		06:48	07:19-07:44/25	05:28	05:59-06:29/30	04:27	05:54-06:08/14
	15:39		16:40	17:46		19:55		21:01		22:03	
2	09:00	11:59-12:15/16	08:19	07:11		06:45	07:18-07:43/25	05:25	05:55-06:29/34	04:26	05:55-06:07/12
	15:41		16:42	17:48		19:57		21:04		22:04	
3	09:00	12:00-12:14/14	08:17	07:08		06:42	07:18-07:42/24	05:23	05:53-06:27/34	04:24	05:57-06:05/8
	15:42		16:45	17:50		19:59		21:06		22:06	
4	08:59	12:01-12:13/12	08:15	07:05		06:39	07:19-07:42/23	05:20	05:51-06:25/34	04:23	06:00-06:04/4
	15:43		16:47	17:53		20:02		21:08		22:07	
5	08:59	12:03-12:13/10	08:13	07:03	07:30-07:35/5	06:37	07:19-07:40/21	05:18	05:50-06:23/33	04:22	
	15:45		16:49	17:55		20:04		21:10		22:08	
6	08:58	12:05-12:11/6	08:10	07:00	07:27-07:37/10	06:34	07:19-07:38/19	05:16	05:49-06:17/28	04:21	
	15:46		16:52	17:57		20:06		21:12		22:10	
7	08:57		08:08	06:57	07:24-07:37/13	06:31	07:20-07:36/16	05:13	05:48-06:16/28	04:20	
	15:48		16:54	18:00		20:08		21:14		22:11	
8	08:57		08:06	06:55	07:21-07:38/17	06:28	07:22-07:34/12	05:11	05:47-06:15/28	04:20	
	15:50		16:57	18:02		20:10		21:17		22:12	
9	08:56		08:04	06:52	07:18-07:38/20	06:26	07:26-07:29/3	05:09	05:46-06:14/28	04:19	
	15:51		16:59	18:04		20:13		21:19		22:13	
10	08:55		08:01	06:49	07:16-07:38/22	06:23		05:07	05:45-06:14/29	04:18	
	15:53		17:01	18:06		20:15		21:21		22:14	
11	08:54		07:59	06:46	07:13-07:38/25	06:20		05:04	05:45-06:15/30	04:17	
	15:55		17:04	18:09		20:17		21:23		22:15	
12	08:53		07:57	06:44	07:11-07:37/26	06:17		05:02	05:45-06:16/31	04:17	
	15:57		17:06	18:11		20:19		21:25		22:16	
13	08:52		07:54	06:41	07:11-07:36/25	06:15		05:00	05:45-06:16/31	04:16	
	15:59		17:08	18:13		20:21		21:27		22:17	
14	08:51		07:52	06:38	07:11-07:34/23	06:12		04:58	05:45-06:16/31	04:16	
	16:01		17:11	18:15		20:24		21:29		22:18	
15	08:50		07:49	06:35	07:12-07:33/21	06:09		04:56	05:45-06:16/31	04:16	
	16:03		17:13	18:18		20:26		21:31		22:18	
16	08:48		07:47	06:32	07:13-07:30/17	06:06		04:54	05:45-06:15/30	04:15	
	16:05		17:16	18:20		20:28		21:33		22:19	
17	08:47		07:44	06:30	07:14-07:26/12	06:04		04:52	05:44-06:15/31	04:15	
	16:07		17:18	18:22		20:30		21:35		22:20	
18	08:46		07:42	06:27	07:16-07:22/6	06:01		04:50	05:45-06:16/31	04:15	
	16:09		17:20	18:24		20:33		21:38		22:20	
19	08:44		07:39	06:24		05:58		04:48	05:45-06:15/30	04:15	
	16:11		17:23	18:26		20:35		21:39		22:21	
20	08:43		07:37	06:21		05:56	06:23-06:25/2	04:46	05:45-06:15/30	04:15	
	16:13		17:25	18:29		20:37		21:41		22:21	
21	08:41		07:34	06:18		05:53	06:21-06:28/7	04:44	05:46-06:15/29	04:15	
	16:15		17:27	18:31		20:39		21:43		22:21	
22	08:39		07:32	06:16		05:51	06:18-06:29/11	04:42	05:46-06:14/28	04:15	
	16:17		17:30	18:33		20:41		21:45		22:21	
23	08:38		07:29	06:13		05:48	06:16-06:30/14	04:40	05:47-06:14/27	04:15	
	16:19		17:32	18:35		20:44		21:47		22:22	
24	08:36		07:27	06:10	06:36-06:38/2	05:45	06:13-06:30/17	04:39	05:47-06:13/26	04:16	
	16:22		17:34	18:37		20:46		21:49		22:22	
25	08:34		07:24	06:07	06:33-06:41/8	05:43	06:11-06:31/20	04:37	05:48-06:13/25	04:16	
	16:24		17:37	18:40		20:48		21:51		22:22	
26	08:33		07:21	06:05	06:31-06:43/12	05:40	06:08-06:30/22	04:35	05:48-06:12/24	04:17	
	16:26		17:39	18:42		20:50		21:53		22:22	
27	08:31		07:19	06:02	06:28-06:44/16	05:38	06:06-06:31/25	04:34	05:49-06:12/23	04:17	
	16:28		17:41	18:44		20:52		21:54		22:21	
28	08:29		07:16	05:59	06:25-06:44/19	05:35	06:04-06:31/27	04:32	05:50-06:12/22	04:18	
	16:31		17:44	18:46		20:55		21:56		22:21	
29	08:27			06:56	07:22-07:45/23	05:33	06:01-06:30/29	04:31	05:51-06:11/20	04:18	
	16:33			19:48		20:57		21:58		22:21	
30	08:25			06:53	07:19-07:44/25	05:30	05:59-06:30/31	04:30	05:52-06:11/19	04:19	
	16:35			19:51		20:59		21:59		22:20	
31	08:23			06:51	07:19-07:45/26			04:28	05:52-06:09/17		
	16:38			19:53				22:01			
Potential sun hours	227		262	365		429		515		539	
Sum of minutes with flicker	74		0	373		373		872		38	

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 9 - VESTAS V162-7.2 7200 162.0 !OI hub: 162.0 m (TOT: 243.0 m) (30)
 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 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

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

	July	August	September	October	November	December
1	04:20 22:20	05:09 05:56-06:26/30 21:35	06:15 20:17	07:18 07:50-08:16/26 18:53	07:28 16:32	08:33 15:37
2	04:21 22:19	05:11 05:56-06:26/30 21:33	06:17 20:15	07:21 07:50-08:16/26 18:51	07:30 16:30	08:35 15:36
3	04:22 22:19	05:13 05:56-06:24/28 21:31	06:19 07:24-07:27/3 20:12	07:23 07:52-08:15/23 18:48	07:32 16:27	08:36 15:35
4	04:23 22:18	05:15 05:56-06:24/28 21:29	06:21 07:19-07:31/12 20:09	07:25 07:55-08:16/21 18:45	07:34 16:25	08:38 15:34
5	04:24 22:17	05:17 05:57-06:25/28 21:26	06:23 07:17-07:33/16 20:06	07:27 07:57-08:15/18 18:42	07:37 16:23	08:40 15:33
6	04:25 22:17	05:19 05:58-06:26/28 21:24	06:25 07:15-07:34/19 20:04	07:29 07:59-08:14/15 18:40	07:39 16:20	08:41 11:51-11:57/6 15:33
7	04:26 22:16	05:22 05:58-06:26/28 21:22 06:27-06:30/3	06:28 07:14-07:35/21 20:01	07:31 08:01-08:12/11 18:37	07:41 16:18	08:43 11:50-11:59/9 15:32
8	04:27 22:15	05:24 06:00-06:33/33 21:19	06:30 07:13-07:36/23 19:58	07:34 08:04-08:12/8 18:34	07:44 16:16	08:45 11:49-12:01/12 15:31
9	04:29 06:05-06:12/7 22:14	05:26 06:01-06:35/34 21:17	06:32 07:12-07:36/24 19:55	07:36 08:06-08:09/3 18:31	07:46 16:14	08:46 11:48-12:02/14 15:31
10	04:30 06:03-06:14/11 22:13	05:28 06:03-06:36/33 21:15	06:34 07:11-07:37/26 19:52	07:38 18:29	07:48 16:12	08:47 11:48-12:04/16 15:30
11	04:31 06:03-06:16/13 22:11	05:30 06:06-06:37/31 21:12	06:36 07:11-07:36/25 19:50	07:40 18:26	07:51 16:10	08:49 11:48-12:04/16 15:30
12	04:33 06:01-06:17/16 22:10	05:32 06:08-06:38/30 21:10	06:38 07:11-07:36/25 19:47	07:42 18:23	07:53 16:08	08:50 11:48-12:06/18 15:30
13	04:34 06:00-06:18/18 22:09	05:34 06:08-06:38/30 21:07	06:40 07:11-07:36/25 19:44	07:45 18:20	07:55 16:06	08:51 11:48-12:06/18 15:29
14	04:36 06:00-06:19/19 22:08	05:36 06:10-06:38/28 21:05	06:42 07:12-07:35/23 19:41	07:47 18:18	07:57 16:04	08:52 11:48-12:07/19 15:29
15	04:37 05:59-06:20/21 22:06	05:39 06:12-06:38/26 21:02	06:44 07:14-07:34/20 19:38	07:49 18:15	08:00 16:02	08:53 11:49-12:09/20 15:29
16	04:39 05:59-06:21/22 22:05	05:41 06:14-06:38/24 21:00	06:47 07:16-07:33/17 19:36	07:51 18:12	08:02 16:00	08:54 11:49-12:09/20 15:29
17	04:41 05:58-06:22/24 22:03	05:43 06:16-06:38/22 20:57	06:49 07:18-07:31/13 19:33	07:53 18:10	08:04 15:58	08:55 11:49-12:10/21 15:29
18	04:42 05:58-06:23/25 22:02	05:45 06:18-06:37/19 20:55	06:51 07:20-07:29/9 19:30	07:56 18:07	08:06 15:56	08:56 11:49-12:10/21 15:29
19	04:44 05:57-06:23/26 22:00	05:47 06:20-06:37/17 20:52	06:53 07:23-07:27/4 19:27	07:58 18:04	08:08 15:54	08:57 11:49-12:10/21 15:29
20	04:46 05:57-06:24/27 21:58	05:49 06:22-06:36/14 20:49	06:55 19:24	08:00 18:02	08:11 15:53	08:58 11:50-12:11/21 15:30
21	04:48 05:56-06:24/28 21:57	05:51 06:24-06:34/10 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 11:51-12:12/21 15:30
22	04:50 05:56-06:25/29 21:55	05:54 06:26-06:33/7 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 11:51-12:12/21 15:30
23	04:51 05:56-06:25/29 21:53	05:56 06:28-06:30/2 20:42	07:01 19:16	08:07 17:54	08:17 15:48	08:59 11:51-12:12/21 15:31
24	04:53 05:55-06:25/30 21:51	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 11:52-12:13/21 15:32
25	04:55 05:55-06:26/31 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 11:52-12:14/22 15:32
26	04:57 05:55-06:26/31 21:48	06:02 20:34	07:08 07:56-08:07/11 19:07	07:14 16:47	08:23 15:43	09:01 11:53-12:14/21 15:33
27	04:59 05:56-06:26/30 21:46	06:04 20:31	07:10 07:54-08:09/15 19:05	07:16 16:44	08:25 15:42	09:01 11:54-12:14/20 15:34
28	05:01 05:55-06:26/31 21:44	06:06 20:28	07:12 07:53-08:13/20 19:02	07:18 16:42	08:27 15:41	09:01 11:54-12:14/20 15:35
29	05:03 05:55-06:26/31 21:42	06:08 20:26	07:14 07:52-08:15/23 18:59	07:21 16:39	08:29 15:40	09:01 11:55-12:15/20 15:36
30	05:05 05:55-06:26/31 21:40	06:11 20:23	07:16 07:51-08:15/24 18:56	07:23 16:37	08:31 15:38	09:01 11:55-12:14/19 15:37
31	05:07 05:55-06:26/31 21:37	06:13 20:20		07:25 16:34		09:01 11:57-12:15/18 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	561	563	398	151	0	476

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 10 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (32)

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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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	09:00 15:39 09:00 15:41	08:21 16:40 08:19 16:42	07:13 17:46 07:11 17:48	06:48 19:55 06:45 19:57	05:28 21:01 05:25 21:03	04:27 22:03 04:26 22:04	04:20 22:20 04:21 22:19	05:09 21:35 05:11 21:33	06:15 20:17 06:17 20:15	07:18 18:53 07:21 18:51	07:48-07:59/11 16:32 07:50-07:56/6 16:30	07:27 15:37 07:30 15:36
2	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:36 15:35
3	08:59 15:44	08:15 16:47	07:05 17:53	06:39 20:02	05:20 21:08	04:23 22:07	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
4	08:59 15:45	08:12 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
5	08:58 15:47	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:33
6	08:57 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:14	04:20 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
7	08:57 15:50	08:06 16:57	06:55 18:02	06:28 20:10	05:11 21:17	04:20 22:12	04:27 22:15	05:24 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:44 15:31
8	08:56 15:51	08:04 16:59	06:52 18:04	06:26 20:13	05:09 21:19	04:19 22:13	04:29 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
9	08:55 15:53	08:01 17:01	06:49 18:06	06:23 20:15	05:07 21:21	04:18 22:14	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:47 15:30
10	08:54 15:55	07:59 17:04	06:46 18:09	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:11	05:30 21:12	06:36 19:50	07:40 18:26	07:50 16:10	08:49 15:30
11	08:53 15:57	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:17 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:30
12	08:52 15:59	07:54 17:08	06:41 18:13	06:15 20:21	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	07:55 16:06	08:51 15:29
13	08:51 16:01	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:29	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:52 15:29
14	08:49 16:03	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:31	04:16 22:18	04:37 22:06	05:39 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:53 15:29
15	08:48 16:05	07:47 17:16	06:32 18:20	06:06 20:28	04:54 21:33	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:35	07:51 18:12	08:02 16:00	08:54 15:29
16	08:47 16:07	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:35	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:55 15:29
17	08:45 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:37	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:51-08:02/11 18:07	07:56 15:56	08:56 15:29
18	08:44 16:11	07:39 17:23	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:48-08:04/16 18:04	07:58 15:54	08:57 15:29
19	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	07:47-08:06/19 18:02	07:59 15:53	08:58 15:30
20	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:43	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	07:46-08:06/20 17:59	08:02 15:51	08:58 15:30
21	08:39 16:17	07:32 17:30	06:16 18:33	05:51 20:41	04:42 21:45	04:15 22:21	04:50 21:55	05:54 20:44	06:59 19:19	07:44-08:07/23 17:57	08:05 15:49	08:59 15:30
22	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:41 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	07:43-08:07/24 17:54	08:07 15:48	08:59 15:31
23	08:36 16:22	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:16 22:22	04:53 21:51	05:58 20:39	07:03 19:13	07:43-08:07/24 17:52	08:09 15:46	09:00 15:32
24	08:34 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:49	06:00 20:36	07:06 19:10	07:42-08:06/24 17:11	08:21 15:45	09:00 15:32
25	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:17 22:21	04:57 21:48	06:02 20:34	07:08 19:07	07:42-08:05/23 17:14	08:23 15:43	09:00 15:33
26	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:52	04:34 21:54	04:17 22:21	04:59 21:46	06:04 20:31	07:10 19:05	07:42-08:05/23 17:16	08:25 15:42	09:01 15:34
27	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:32 21:56	04:18 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:43-08:05/22 17:18	08:27 15:41	09:01 15:35
28	08:27 16:33		06:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:25	07:14 18:59	07:44-08:03/19 17:21	08:29 15:40	09:01 15:36
29	08:25 16:35		06:53 19:51	05:30 20:59	04:30 21:59	04:19 22:20	05:05 21:39	06:11 20:23	07:16 18:56	07:46-08:01/15 17:23	08:31 15:38	09:01 15:37
30	08:23 16:38		06:50 19:53		04:28 22:01		05:07 21:37	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Sum of minutes with flicker	0	0	277	0	0	0	0	0	263	17	0	0

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

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

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 11 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (39)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January	February	March	April	May	June
1	09:00 15:39	08:21 16:40	07:13 17:46	16:17-16:56/39 19:55	05:28 21:01	04:27 22:02
2	09:00 15:41	08:19 16:42	07:11 17:48	16:17-16:56/39 19:57	05:25 21:03	04:26 22:04
3	08:59 15:42	08:17 16:45	07:08 17:50	16:16-16:55/39 19:59	05:23 21:06	04:24 22:05
4	08:59 15:43	08:15 16:47	07:05 17:53	16:15-16:55/40 20:02	05:20 21:08	04:23 22:07
5	08:58 15:45	08:12 16:49	07:03 17:55	16:15-16:55/40 20:04	05:18 21:10	04:22 22:08
6	08:58 15:46	08:10 16:52	07:00 17:57	16:16-16:55/39 20:06	05:16 21:12	04:21 22:09
7	08:57 15:48	08:08 16:54	06:57 17:59	16:15-16:55/40 20:08	05:13 21:14	04:20 22:11
8	08:56 15:50	08:06 16:56	06:54 18:02	16:15-16:54/39 20:10	05:11 21:16	04:20 22:12
9	08:56 15:51	08:03 16:59	06:52 18:04	16:15-16:53/38 20:13	05:09 21:19	04:19 22:13
10	08:55 15:53	08:01 17:01	06:49 18:06	16:16-16:52/36 20:15	05:06 21:21	04:18 22:14
11	08:54 15:55	07:59 17:04	06:46 18:08	16:17-16:52/35 20:17	05:04 21:23	04:17 22:15
12	08:53 15:57	07:56 17:06	06:43 18:11	16:18-16:51/33 20:19	05:02 21:25	04:17 22:16
13	08:52 15:59	07:54 17:08	06:41 18:13	16:18-16:49/31 20:21	05:00 21:27	04:16 22:17
14	08:51 16:01	07:52 17:11	06:38 18:15	16:20-16:47/27 20:24	04:58 21:29	04:16 22:18
15	08:49 16:02	07:49 17:13	06:35 18:17	16:21-16:45/24 20:26	04:56 21:31	04:16 22:18
16	08:48 16:04	07:47 17:15	06:32 18:20	16:23-16:42/19 20:28	04:54 21:33	04:15 22:19
17	08:47 16:06	07:44 17:18	06:30 18:22	16:28-16:39/11 20:30	04:52 21:35	04:15 22:19
18	08:45 16:09	07:42 17:20	06:27 18:24	17:27-17:52/25 20:32	04:50 21:37	04:15 22:20
19	08:44 16:11	07:39 17:22	06:24 18:26	17:26-17:51/25 20:35	04:48 21:39	04:15 22:20
20	08:42 16:13	07:37 17:25	06:21 18:28	17:26-17:51/25 20:37	04:46 21:41	04:15 22:21
21	08:41 16:15	07:34 17:27	06:18 18:31	17:26-17:50/24 20:39	04:44 21:43	04:15 22:21
22	08:39 16:17	07:32 17:30	06:16 18:33	17:26-17:49/23 20:41	04:42 21:45	04:15 22:21
23	08:38 16:19	07:29 17:32	06:13 18:35	17:27-17:49/22 20:43	04:40 21:47	04:15 22:21
24	08:36 16:22	07:26 17:34	06:10 18:37	17:27-17:47/20 20:46	04:39 21:49	04:16 22:21
25	08:34 16:24	07:24 17:36	06:07 18:40	17:28-17:45/17 20:48	04:37 21:51	04:16 22:21
26	08:32 16:26	07:21 17:39	06:04 18:42	17:30-17:43/13 20:50	04:35 21:52	04:17 22:21
27	08:31 16:28	07:19 17:41	06:02 18:44	17:34-17:38/4 20:52	04:34 21:54	04:17 22:21
28	08:29 16:31	07:16 17:43	05:59 18:46	05:59 20:55	04:32 21:56	04:18 22:21
29	08:27 16:33		06:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 21:59	04:19 22:20
31	08:23 16:38		06:50 19:53		04:28 22:01	
Potential sun hours	227	262	365	429	515	539
Sum of minutes with flicker	0	762	867	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 11 - VESTAS V162-7.2 7200 162.0 !OI! hub: 162.0 m (TOT: 243.0 m) (39)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	July	August	September	October	November	December
1	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:33 15:37
2	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:30	08:34 15:36
3	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:36 15:35
4	04:23 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:33
7	04:26 22:15	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	04:27 22:14	05:24 21:19	06:30 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	04:29 22:13	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
10	04:30 22:12	05:28 21:14	06:34 19:52	07:38 18:28	07:48 16:12	08:47 15:30
11	04:31 22:11	05:30 21:12	06:36 19:49	07:40 18:26	07:50 16:10	08:49 15:30
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	07:55 16:06	08:51 15:29
14	04:36 22:07	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:52 15:29
15	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:02	08:53 15:29
16	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:55 15:29
18	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:08 15:54	08:57 15:29
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:53	08:58 15:30
21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	04:50 21:55	05:53 20:44	06:59 19:18	08:04 17:57	08:15 15:49	08:59 15:30
23	04:51 21:53	05:56 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	04:55 21:49	06:00 20:36	07:05 19:10	08:11 17:49	08:21 15:45	09:00 15:32
26	04:57 21:47	06:02 20:33	07:08 19:07	08:14 17:46	08:23 15:43	09:00 15:33
27	04:59 21:45	06:04 20:31	07:10 19:04	08:16 17:44	08:25 15:42	09:00 15:34
28	05:01 21:43	06:06 20:28	07:12 19:02	08:18 17:42	08:27 15:41	09:01 15:35
29	05:03 21:41	06:08 20:25	07:14 18:59	08:20 17:39	08:29 15:40	09:01 15:36
30	05:05 21:39	06:10 20:23	07:16 18:56	08:23 17:37	08:31 15:38	09:01 15:37
31	05:07 21:37	06:13 20:20		07:25 17:34		09:00 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	0	0	394	1095	162	222

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

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

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 12 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (42)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January		February		March		April		May		June	
1	09:00	14:35-14:53/18	08:21		07:13	16:59-17:16/17	06:48	18:34-18:57/23	05:28		04:27	
	15:39		16:40		17:46		19:55	19:04-19:24/20	21:01		22:02	
2	09:00	14:34-14:54/20	08:19		07:11	16:58-17:18/20	06:45	18:35-18:56/21	05:25		04:26	
	15:41		16:42		17:48		19:57	19:05-19:24/19	21:03		22:04	
3	09:00	14:35-14:56/21	08:17		07:08	16:58-17:20/22	06:42	18:36-18:53/17	05:23		04:24	
	15:42		16:45		17:50		19:59	19:05-19:23/18	21:06		22:05	
4	08:59	14:35-14:57/22	08:15		07:05	16:57-17:23/26	06:39	18:38-18:50/12	05:20		04:23	
	15:43		16:47		17:53		20:02	19:05-19:21/16	21:08		22:07	
5	08:59	14:35-14:58/23	08:12		07:03	16:57-17:23/26	06:37	19:06-19:19/13	05:18		04:22	
	15:45		16:49		17:55		20:04		21:10		22:08	
6	08:58	14:35-14:59/24	08:10		07:00	16:59-17:23/24	06:34	19:09-19:17/8	05:16		04:21	
	15:46		16:52		17:57		20:06		21:12		22:09	
7	08:57	14:35-14:59/24	08:08		06:57	16:59-17:22/23	06:31		05:13		04:20	
	15:48		16:54		17:59		20:08		21:14		22:11	
8	08:56	14:36-15:00/24	08:06		06:54	17:01-17:21/20	06:28		05:11		04:20	
	15:50		16:56		18:02		20:10		21:16		22:12	
9	08:56	14:36-15:01/25	08:03		06:52	17:03-17:19/16	06:25		05:09		04:19	
	15:51		16:59		18:04		20:13		21:19		22:13	
10	08:55	14:37-15:02/25	08:01		06:49	17:06-17:17/11	06:23		05:06		04:18	
	15:53		17:01		18:06		20:15		21:21		22:14	
11	08:54	14:36-15:02/26	07:59		06:46	17:11-17:13/2	06:20		05:04		04:17	
	15:55		17:04		18:08		20:17		21:23		22:15	
12	08:53	14:37-15:03/26	07:56		06:43		06:17		05:02		04:17	
	15:57		17:06		18:11		20:19		21:25		22:16	
13	08:52	14:36-15:02/26	07:54		06:41		06:15		05:00		04:16	
	15:59		17:08		18:13		20:21		21:27		22:17	
14	08:51	14:37-15:03/26	07:52		06:38		06:12		04:58		04:16	
	16:01		17:11		18:15		20:24		21:29		22:18	
15	08:49	14:37-15:03/26	07:49		06:35		06:09		04:56		04:16	
	16:02		17:13		18:17		20:26		21:31		22:18	
16	08:48	14:38-15:04/26	07:47		06:32		06:06		04:54		04:15	
	16:04		17:15		18:20		20:28		21:33		22:19	
17	08:47	14:38-15:04/26	07:44		06:30		06:04		04:52		04:15	
	16:07		17:18		18:22		20:30		21:35		22:20	
18	08:45	14:39-15:04/25	07:42		06:27	17:44-17:55/11	06:01		04:50		04:15	
	16:09		17:20		18:24		20:32		21:37		22:20	
19	08:44	14:39-15:04/25	07:39		06:24	17:41-17:57/16	05:58		04:48		04:15	
	16:11		17:23		18:26		20:35		21:39		22:20	
20	08:42	14:40-15:05/25	07:37		06:21	17:38-17:59/21	05:56		04:46		04:15	
	16:13		17:25		18:29		20:37		21:41		22:21	
21	08:41	14:41-15:05/24	07:34		06:18	17:37-18:00/23	05:53		04:44		04:15	
	16:15		17:27		18:31		20:39		21:43		22:21	
22	08:39	14:42-15:05/23	07:32		06:16	17:35-18:01/26	05:51		04:42		04:15	
	16:17		17:30		18:33		20:41		21:45		22:21	
23	08:38	14:43-15:04/21	07:29		06:13	17:35-18:02/27	05:48		04:40		04:15	
	16:19		17:32		18:35		20:43		21:47		22:21	
24	08:36	14:44-15:04/20	07:27		06:10	17:34-18:02/28	05:45		04:39		04:16	
	16:22		17:34		18:37		20:46		21:49		22:21	
25	08:34	14:45-15:03/18	07:24	17:03-17:06/3	06:07	17:33-18:02/29	05:43		04:37		04:16	
	16:24		17:37		18:40		20:48		21:51		22:21	
26	08:32	14:46-15:02/16	07:21	17:01-17:08/7	06:04	17:32-18:01/29	05:40		04:35		04:17	
	16:26		17:39		18:42	18:10-18:12/2	20:50		21:52		22:21	
27	08:31	14:48-15:00/12	07:19	17:00-17:11/11	06:02	17:32-18:01/29	05:38		04:34		04:17	
	16:28		17:41		18:44	18:08-18:14/6	20:52		21:54		22:21	
28	08:29	14:51-14:58/7	07:16	16:59-17:13/14	05:59	17:32-18:01/29	05:35		04:32		04:18	
	16:31		17:43		18:46	18:08-18:17/9	20:55		21:56		22:21	
29	08:27				06:56	18:32-19:00/28	05:33		04:31		04:18	
	16:33				19:48	19:06-19:19/13	20:57		21:58		22:21	
30	08:25				06:53	18:32-18:59/27	05:30		04:29		04:19	
	16:35				19:51	19:05-19:21/16	20:59		21:59		22:20	
31	08:23				06:50	18:33-18:58/25			04:28			
	16:38				19:53	19:05-19:23/18			22:01			
Potential sun hours	227		262		365		429		515		539	
Sum of minutes with flicker	624		35		619		167		0		0	

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

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

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 12 - VESTAS V162-7.2 7200 162.0 !OI hub: 162.0 m (TOT: 243.0 m) (42)
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 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

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

	July	August	September	October	November	December
1	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:33 15:37
2	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:51	07:30 16:30	08:35 15:36
3	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:36 15:35
4	04:23 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:33
7	04:26 22:16	05:22 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	04:27 22:15	05:24 21:19	06:30 19:58	18:34 18:34	07:44 16:16	08:44 15:31
9	04:29 22:14	05:26 21:17	06:32 19:55	18:31 18:31	07:46 16:14	08:46 15:31
10	04:30 22:12	05:28 21:14	06:34 19:52	18:28 18:28	07:48 16:12	08:47 15:30
11	04:31 22:11	05:30 21:12	06:36 19:49	18:26 18:26	07:50 16:10	08:49 15:30
12	04:33 22:10	05:32 21:10	06:38 19:47	18:23 18:23	07:53 16:08	08:50 15:29
13	04:34 22:09	05:34 21:07	06:40 19:44	18:20 18:20	07:55 16:06	08:51 15:29
14	04:36 22:07	05:36 21:05	06:42 19:41	18:18 18:18	07:57 16:04	08:52 15:29
15	04:37 22:06	05:38 21:02	06:44 19:38	18:15 18:15	07:59 16:02	08:53 15:29
16	04:39 22:05	05:41 21:00	06:46 19:35	18:12 18:12	08:02 16:00	08:54 15:29
17	04:41 22:03	05:43 20:57	06:49 19:33	18:10 18:10	08:04 15:58	08:55 15:29
18	04:42 22:02	05:45 20:55	06:51 19:30	18:07 18:07	08:06 15:56	08:56 15:29
19	04:44 22:00	05:47 20:52	06:53 19:27	18:04 18:04	08:08 15:54	08:57 15:29
20	04:46 21:58	05:49 20:49	06:55 19:24	18:00 18:00	08:10 15:53	08:58 15:30
21	04:48 21:57	05:51 20:47	06:57 19:21	18:02 17:59	08:13 15:51	08:58 15:30
22	04:50 21:55	05:53 20:44	06:59 19:19	18:04 17:57	08:15 15:49	08:59 15:30
23	04:51 21:53	05:56 20:41	07:01 19:16	18:07 17:54	08:17 15:48	08:59 15:31
24	04:53 21:51	05:58 20:39	07:03 19:13	18:09 17:52	08:19 15:46	09:00 15:32
25	04:55 21:49	06:00 20:36	07:05 19:10	18:11 16:49	08:21 15:45	09:00 15:32
26	04:57 21:47	06:02 20:33	07:08 19:07	18:14 16:47	08:23 15:43	09:00 15:33
27	04:59 21:45	06:04 20:31	07:10 19:04	18:16 16:44	08:25 15:42	09:01 15:34
28	05:01 21:43	06:06 20:28	07:12 19:02	18:18 16:42	08:27 15:41	09:01 15:35
29	05:03 21:41	06:08 20:25	07:14 18:59	18:20 16:39	08:29 15:40	09:01 15:36
30	05:05 21:39	06:11 20:23	07:16 18:56	18:23 16:37	08:31 15:38	09:01 15:37
31	05:07 21:37	06:13 20:20		18:25 16:34		09:00 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	0	0	588	248	376	521

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 13 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (34)
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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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	09:00 15:39	08:21 15:35-15:55/20	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:33 15:37
2	09:00 15:41	08:19 15:35-15:55/20	07:11 17:48	06:45 19:57	05:25 21:03	04:26 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 15:36-15:55/19	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:36 15:35
4	08:59 15:44	08:15 15:37-15:54/17	07:05 17:53	06:39 20:02	05:20 21:08	04:23 22:07	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 15:11-15:20/9	08:38 15:34
5	08:59 15:45	08:12 15:38-15:54/16	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 15:09-15:22/13	08:40 15:33
6	08:58 15:46	08:10 15:39-15:52/13	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 15:08-15:23/15	08:41 15:33
7	08:57 15:48	08:08 15:42-15:50/8	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:31 18:37	07:41 15:07-15:25/18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:20 22:12	04:27 22:15	05:24 21:19	06:30 19:58	07:33 18:34	07:44 15:06-15:25/19	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:26 20:13	05:09 21:19	04:19 22:13	04:29 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 15:06-15:26/20	08:46 15:31
10	08:55 15:53	08:01 17:01	06:49 18:06	06:23 20:15	05:07 21:21	04:18 22:14	04:30 22:12	05:28 21:15	06:34 19:52	07:38 18:29	07:48 15:05-15:26/21	08:47 15:30
11	08:54 15:55	07:59 17:04	06:46 18:09	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:11	05:30 21:12	06:36 19:49	07:40 18:26	07:50 15:06-15:26/20	08:49 15:30
12	08:53 15:57	07:56 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:17 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 15:05-15:26/21	08:50 15:30
13	08:52 15:59	07:54 17:08	06:41 18:13	06:15 20:21	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	07:55 15:06-15:27/21	08:51 15:29
14	08:51 16:01	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 18:38-18:48/10	07:47 18:18	07:57 15:07-15:25/18	08:52 15:29
15	08:49 16:03	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:16 22:18	04:37 22:06	05:39 21:02	06:44 18:35-18:50/15	07:49 18:15	07:59 15:07-15:23/16	08:53 15:29
16	08:48 16:05	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:33	04:15 22:19	04:39 22:05	05:41 21:00	06:46 18:33-18:50/17	07:51 18:12	08:02 15:08-15:21/13	08:54 15:29
17	08:47 16:07	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:35	04:15 22:20	04:41 22:03	05:43 20:57	06:49 18:32-18:51/19	07:53 18:10	08:04 15:08-15:18/10	08:55 15:29
18	08:45 16:09	07:42 17:20	06:27 17:50-17:55/5	06:01 20:32	04:50 21:37	04:15 22:20	04:42 22:02	05:45 20:55	06:51 18:31-18:51/20	07:56 18:07	08:06 15:10-15:17/7	08:56 15:29
19	08:44 16:11	07:39 17:23	06:24 17:48-17:57/9	05:58 20:35	04:48 21:39	04:15 22:20	04:44 22:00	05:47 20:52	06:53 18:30-18:51/21	07:58 18:04	08:08 15:10-15:14/4	08:57 15:29
20	08:42 16:13	07:37 17:25	06:21 17:46-17:59/13	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 18:30-18:51/21	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:34 17:27	06:18 17:45-18:01/16	05:53 20:39	04:44 21:43	04:15 22:21	04:48 21:57	05:51 20:47	06:57 18:29-18:50/21	08:02 17:59	08:13 15:53	08:58 15:30
22	08:39 16:17	07:32 17:30	06:16 17:44-18:03/19	05:51 20:41	04:42 21:45	04:15 22:21	04:50 21:55	05:53 20:44	06:59 18:30-18:48/18	08:05 17:57	08:15 15:53	08:59 15:30
23	08:38 15:36-15:40/4	07:29 17:32	06:13 17:44-18:05/21	05:48 20:44	04:40 21:47	04:15 22:21	04:51 21:53	05:56 20:42	07:01 18:30-18:45/15	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 15:36-15:43/7	07:27 17:34	06:10 17:43-18:04/21	05:45 20:46	04:39 21:49	04:16 22:22	04:53 21:51	05:58 20:39	07:03 18:31-18:42/11	08:09 17:52	08:19 15:46	09:00 15:32
25	08:34 15:35-15:45/10	07:24 17:37	06:07 17:43-18:04/21	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:49	06:00 20:36	07:06 18:32-18:39/7	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 15:35-15:48/13	07:21 17:39	06:04 17:43-18:03/20	05:40 20:50	04:35 21:53	04:17 22:21	04:57 21:47	06:02 20:34	07:08 18:34-18:36/2	07:14 16:47	08:23 15:43	09:00 15:33
27	08:31 15:34-15:50/16	07:19 17:41	06:02 17:44-18:01/17	05:38 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 15:34-15:52/18	07:16 16:31	05:59 17:45-18:00/15	05:35 20:55	04:32 21:56	04:18 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 15:34-15:55/21	17:43	06:56 18:47-18:58/11	05:33 19:48	04:31 20:57	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:40	09:01 15:36
30	08:25 15:34-15:55/21		06:53 18:51-18:53/2	05:30 19:51	04:30 20:59	04:19 22:20	05:05 21:39	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 15:35-15:56/21		06:50 19:53	05:28 22:01	04:28 22:01	04:19 22:20	05:07 21:37	06:13 20:20		07:25 16:34		09:00 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Sum of minutes with flicker	131	113	190	0	0	0	0	0	197	0	245	0

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 14 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (35)

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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	January	February	March	April	May	June
1	09:00 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:26 22:04
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05
4	08:59 15:43	08:15 16:47	07:05 17:53	06:39 20:02	05:20 21:08	04:23 22:07
5	08:59 15:45	08:12 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:09
7	08:57 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:11
8	08:57 15:50	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:20 22:12
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13
10	08:55 15:53	08:01 17:01	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14
11	08:54 15:55	07:59 17:04	06:46 18:09	06:20 20:17	05:04 21:23	04:17 22:15
12	08:53 15:57	07:56 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:17 22:16
13	08:52 15:59	07:54 17:08	06:41 18:13	06:15 20:21	05:00 21:27	04:16 22:17
14	08:51 16:01	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:29	04:16 22:18
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:16 22:18
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:33	04:15 22:19
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:35	04:15 22:20
18	08:45 16:09	07:42 17:20	06:27 18:24	06:01 20:32	04:50 21:37	04:15 22:20
19	08:44 16:11	07:39 17:23	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21
20	08:42 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:41	04:15 22:21
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:43	04:15 22:21
22	08:39 16:17	07:32 17:30	06:16 18:33	05:51 20:41	04:42 21:45	04:15 22:21
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:21
24	08:36 16:22	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:16 22:22
25	08:34 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:17 22:21
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:52	04:34 21:54	04:17 22:21
28	08:29 16:31	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:18 22:21
29	08:27 16:33		06:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 21:59	04:19 22:20
31	08:23 16:38		06:50 19:53		04:28 22:01	
Potential sun hours	227	262	365	429	515	539
Sum of minutes with flicker	0	367	151	264	0	0

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

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

Project:

Flickering_Valka_Vestas162

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 15:10/4.1.254

SHADOW - Calendar per WTG

Calculation: Flickering_Valka_Vestas162 WTG: 14 - VESTAS V162-7.2 7200 162.0 !O! hub: 162.0 m (TOT: 243.0 m) (35)

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	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

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

	July	August	September	October	November	December
1	04:20 22:20	05:09 21:35	06:15 20:17	19:31-19:45/14 18:53	07:18 16:32	08:33 15:37
2	04:21 22:19	05:11 21:33	06:17 20:14	19:32-19:42/10 18:51	07:30 16:30	08:35 15:36
3	04:22 22:19	05:13 21:31	06:19 20:12	19:34-19:40/6 18:48	07:32 16:27	08:36 15:35
4	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:33
7	04:26 22:16	05:22 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	04:27 22:15	05:24 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:44 15:31
9	04:29 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
10	04:30 22:12	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:47 15:30
11	04:31 22:11	05:30 21:12	06:36 19:49	07:40 18:26	07:50 16:10	08:49 15:30
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	07:55 16:06	08:51 15:29
14	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:52 15:29
15	04:37 22:06	05:39 21:02	06:44 19:38	07:49 18:15	07:59 16:02	08:53 15:29
16	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:55 15:29
18	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:56 15:29
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:08 15:54	08:57 15:29
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	04:50 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	04:55 21:49	06:00 20:36	07:06 19:10	08:11 16:49	08:21 15:45	09:00 15:32
26	04:57 21:47	06:02 20:34	07:08 19:07	08:14 16:47	08:23 15:43	09:00 15:33
27	04:59 21:46	06:04 20:31	07:10 19:04	08:16 16:44	08:25 15:42	09:01 15:34
28	05:01 21:44	06:06 20:28	07:12 19:02	08:18 16:42	08:27 15:41	09:01 15:35
29	05:03 21:41	06:08 20:25	07:14 18:59	08:20 16:39	08:29 15:40	09:01 15:36
30	05:05 21:39	06:11 20:23	07:16 18:56	08:23 16:37	08:31 15:38	09:01 15:37
31	05:07 21:37	06:13 20:20		08:25 16:34	08:36 15:36	09:00 15:38
Potential sun hours	538	474	386	321	241	207
Sum of minutes with flicker	0	239	188	311	59	0

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

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