

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Astras - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (444)
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 15:40	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02	04:20 22:19	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:32 15:37
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	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:29 16:30	08:34 15:36
3	08:59 15:42	08:16 16:45	07:08 17:50	06:42 19:59	05:23 21:05	04:25 22:05	04:22 22:18	05:13 21:30	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:44	08:14 16:47	07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:06	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	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:23	08:39 15:34
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Potential sun hours	228	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Ausekli - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (770)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

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Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

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Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Avoti - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (483)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:14 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Bajari - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (488)
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	14:45 (4)	08:21		07:13	16:28 (2)	06:48	05:27	04:27
	15:39	8	14:53 (4)	16:40	17:46	14	16:42 (2)	19:55	21:01
2	09:00	14:45 (4)	08:19		07:11	16:31 (2)	06:45	05:25	04:25
	15:41	9	14:54 (4)	16:42	17:48	7	16:38 (2)	19:57	21:03
3	09:00	14:46 (4)	08:17		07:08		06:42	05:23	04:24
	15:42	10	14:56 (4)	16:44	17:50		19:59	21:06	22:05
4	08:59	14:46 (4)	08:15		07:05		06:39	05:20	04:23
	15:43	12	14:58 (4)	16:47	17:53		20:01	21:08	22:07
5	08:59	14:46 (4)	08:12		07:03		06:36	05:18	04:22
	15:45	13	14:59 (4)	16:49	17:55		20:04	21:10	22:08
6	08:58	14:46 (4)	08:10		07:00		06:34	05:15	04:21
	15:46	15	15:01 (4)	16:52	17:57		20:06	21:12	22:09
7	08:57	14:46 (4)	08:08		06:57		06:31	05:13	04:20
	15:48	17	15:03 (4)	16:54	17:59		20:08	21:14	22:11
8	08:57	14:46 (4)	08:06		06:54		06:28	05:11	04:19
	15:49	19	15:05 (4)	16:56	18:02		20:10	21:16	22:12
9	08:56	14:46 (4)	08:03		06:52		06:25	05:09	04:18
	15:51	21	15:07 (4)	16:59	18:04		20:12	21:19	22:13
10	08:55	14:47 (4)	08:01		06:49		06:23	05:06	04:18
	15:53	22	15:09 (4)	17:01	18:06		20:15	21:21	22:14
11	08:54	14:46 (4)	07:59		06:46		06:20	05:04	04:17
	15:55	24	15:10 (4)	17:03	18:08		20:17	21:23	22:15
12	08:53	14:47 (4)	07:56		06:43		06:17	05:02	04:17
	15:57	23	15:10 (4)	17:06	18:11		20:19	21:25	22:16
13	08:52	14:47 (4)	07:54	16:29 (2)	06:41		06:14	05:00	04:16
	15:58	23	15:10 (4)	17:08	6	16:35 (2)	20:21	21:27	22:17
14	08:51	14:47 (4)	07:52	16:27 (2)	06:38		06:12	04:58	04:16
	16:00	24	15:11 (4)	17:11	11	16:38 (2)	20:24	21:29	22:18
15	08:49	14:47 (4)	07:49	16:25 (2)	06:35		06:09	04:56	04:15
	16:02	24	15:11 (4)	17:13	15	16:40 (2)	20:26	21:31	22:18
16	08:48	14:48 (4)	07:47	16:25 (2)	06:32		06:06	04:53	04:15
	16:04	24	15:12 (4)	17:15	18	16:43 (2)	20:28	21:33	22:19
17	08:47	14:48 (4)	07:44	16:23 (2)	06:29		06:04	04:51	04:15
	16:06	24	15:12 (4)	17:18	22	16:45 (2)	20:30	21:35	22:20
18	08:45	14:49 (4)	07:42	16:23 (2)	06:27		06:01	04:50	04:15
	16:08	23	15:12 (4)	17:20	25	16:48 (2)	20:32	21:37	22:20
19	08:44	14:49 (4)	07:39	16:23 (2)	06:24		05:58	04:48	04:15
	16:10	23	15:12 (4)	17:22	26	16:49 (2)	20:35	21:39	22:21
20	08:42	14:50 (4)	07:37	16:22 (2)	06:21		05:56	04:46	04:15
	16:13	23	15:13 (4)	17:25	27	16:49 (2)	20:37	21:41	22:21
21	08:41	14:51 (4)	07:34	16:21 (2)	06:18		05:53	04:44	04:15
	16:15	22	15:13 (4)	17:27	28	16:49 (2)	20:39	21:43	22:21
22	08:39	14:52 (4)	07:32	16:22 (2)	06:16		05:50	04:42	04:15
	16:17	21	15:13 (4)	17:29	27	16:49 (2)	20:41	21:45	22:21
23	08:38	14:53 (4)	07:29	16:22 (2)	06:13		05:48	04:40	04:15
	16:19	19	15:12 (4)	17:32	27	16:49 (2)	20:43	21:47	22:22
24	08:36	14:54 (4)	07:26	16:22 (2)	06:10		05:45	04:39	04:15
	16:21	18	15:12 (4)	17:34	26	16:48 (2)	20:46	21:49	22:22
25	08:34	14:55 (4)	07:24	16:23 (2)	06:07		05:43	04:37	04:16
	16:24	16	15:11 (4)	17:36	25	16:48 (2)	20:48	21:51	22:22
26	08:32	14:57 (4)	07:21	16:23 (2)	06:04		05:40	04:35	04:16
	16:26	13	15:10 (4)	17:39	24	16:47 (2)	20:50	21:53	22:21
27	08:31	14:58 (4)	07:19	16:24 (2)	06:02		05:37	04:34	04:17
	16:28	10	15:08 (4)	17:41	21	16:45 (2)	20:52	21:54	22:21
28	08:29		07:16	16:25 (2)	05:59		05:35	04:32	04:17
	16:30		17:43	16:43 (2)	18:46		20:55	21:56	22:21
29	08:27				06:56		05:32	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				19:50		20:59	21:59	22:20
31	08:23				06:50			04:28	
	16:37				19:53			22:01	
Potential sun hours	227		262		365		429	515	539
Total, worst case	500		346		21				
Sun reduction	0.11		0.19		0.40				
Oper. time red.	1.00		1.00		1.00				
Wind dir. red.	1.00		1.00		1.00				
Total reduction	0.11		0.19		0.40				
Total, real	55		67		8				

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Bajari - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (488)
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 16:29	08:35 15:36
3	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:36 15:35
4	04:22 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 15:32
7	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	04:28 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 21:14	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	17:03 (2) 17:14 (2)	07:53 16:07
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	17:00 (2) 17:16 (2)	07:55 16:05
14	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	16:57 (2) 17:17 (2)	07:57 16:03
15	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	16:56 (2) 17:18 (2)	07:59 16:02
16	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	16:55 (2) 17:19 (2)	08:02 16:00
17	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	16:54 (2) 17:19 (2)	08:04 15:58
18	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	16:54 (2) 17:20 (2)	08:06 15:56
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	16:53 (2) 17:20 (2)	08:08 15:54
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	16:52 (2) 17:19 (2)	08:10 15:52
21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	16:53 (2) 17:20 (2)	08:13 15:51
22	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:57	16:52 (2) 17:19 (2)	08:15 15:49
23	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	16:53 (2) 17:19 (2)	08:17 15:48
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	16:53 (2) 17:17 (2)	08:19 15:46
25	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	15:54 (2) 16:15 (2)	08:21 15:45
26	04:57 21:47	06:02 20:33	07:08 19:07	07:14 16:46	15:54 (2) 16:12 (2)	08:23 15:43
27	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	15:56 (2) 16:10 (2)	08:25 15:42
28	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	15:57 (2) 16:06 (2)	08:27 15:41
29	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	15:59 (2) 16:04 (2)	08:29 15:39
30	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	14:28 (4) 14:52 (4)
31	05:07 21:37	06:13 20:20		07:25 16:34		09:00 15:38
Potential sun hours	538	474	386	321	241	207
Total, worst case				369	333	218
Sun reduction				0.28	0.08	0.06
Oper. time red.				1.00	1.00	1.00
Wind dir. red.				1.00	1.00	1.00
Total reduction				0.28	0.08	0.06
Total, real				104	26	13

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Blaumana iela 2 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (666)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Blaumana iela 2A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (675)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Brandini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (498)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:10 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:51	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:21	06:27 20:00	07:31 18:36	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:14	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:08 21:18	04:18 22:13	04:28 22:13	05:25 21:17	06:31 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:48 15:30
12	08:53 15:56	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 21:09	06:38 19:46	07:42 18:23	07:52 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:40 18:13	06:14 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 16:05	08:51 15:29
14	08:50 16:00	07:51 17:10	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:17	04:36 22:07	05:36 21:04	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:55 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:01	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:19	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:04	05:40 20:59	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:01	05:45 20:54	06:50 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:34	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:57 15:29
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	04:47 21:56	05:51 20:47	06:57 19:21	08:02 17:59	08:12 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:15	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:21	04:53 21:51	05:57 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:42 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:30 16:28	07:18 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:01	07:18 16:41	08:27 15:41	09:00 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:00 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	07:16 20:22	07:23 18:56	07:23 16:36	08:31 15:38	09:00 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa 1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (698)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 10 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (562)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 11 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (521)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa 12 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (537)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 14 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (514)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 16 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (543)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 18 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (533)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 19 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (518)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 1A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (767)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	17:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	17:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	17:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	17:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	17:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	17:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa 2 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (729)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 20 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (559)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 21 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (517)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:04	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzes iela 21A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (542)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
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	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:08	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
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	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:52	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:37	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 22 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (592)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 23 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (550)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:04	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
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29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
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Oper. time red.												
Wind dir. red.												
Total reduction												
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SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 24 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (591)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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14	08:51 16:00	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	08:53 15:29
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31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 25 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (520)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 26 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (554)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 27 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (558)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:08	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:31	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:52	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:35
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:37	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 28 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (549)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:24	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:31	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:11	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:48	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:51	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:35
29	08:27		06:56	05:33	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:36
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:37	20:20		16:34		15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 29 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (553)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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14	08:51 16:00	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	08:53 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (714)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
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14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
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22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa 30 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (572)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (728)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (718)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	17:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	17:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	17:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	17:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	17:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	17:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa iela 7a - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (736)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Cimzesa 9 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (762)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	17:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	17:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	17:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	17:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	17:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	17:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Dravas - Shadow Receptor: 1.0 x 1.0 Azimuth: 3.1° Slope: 90.0° (449)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Dzelzelš 162. km - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (781)
 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	08:21	07:14							06:48		07:52 (7)	05:28			04:27		05:08 (5)
	15:40	16:40	17:46							19:55	45	08:37 (7)	21:01			22:03	54	06:17 (6)
2	09:00	08:19	07:11							06:45		07:52 (7)	05:25			04:26		05:09 (5)
	15:41	16:42	17:48							19:57	44	08:36 (7)	21:04			22:04	53	06:17 (6)
3	09:00	08:17	07:08							06:42		07:51 (7)	05:23			04:25		05:10 (5)
	15:42	16:45	17:51							20:00	44	08:35 (7)	21:06			22:06	52	06:17 (6)
4	08:59	08:15	07:06							06:40		07:52 (7)	05:21			04:24		05:10 (5)
	15:44	16:47	17:53							20:02	43	08:35 (7)	21:08			22:07	51	06:17 (6)
5	08:59	08:13	07:03							06:37		07:52 (7)	05:18		05:56 (6)	04:22		05:10 (5)
	15:45	16:50	17:55							20:04	42	08:34 (7)	21:10	10	06:06 (6)	22:08	51	06:17 (6)
6	08:58	08:10	07:00							06:34		07:02 (8)	05:16		05:53 (6)	04:21		05:10 (5)
	15:47	16:52	17:57							20:06	47	08:33 (7)	21:12	16	06:09 (6)	22:10	50	06:16 (6)
7	08:57	08:08	06:57							06:31		06:58 (8)	05:14		05:51 (6)	04:21		05:10 (5)
	15:48	16:54	18:00							20:08	53	08:32 (7)	21:15	20	06:11 (6)	22:11	50	06:16 (6)
8	08:57	08:06	06:55							06:28		06:56 (8)	05:11		05:50 (6)	04:20		05:11 (5)
	15:50	16:57	18:02							20:11	56	08:31 (7)	21:17	23	06:13 (6)	22:12	47	06:16 (6)
9	08:56	08:04	06:52							06:26		06:54 (8)	05:09		05:48 (6)	04:19		05:11 (5)
	15:52	16:59	18:04							20:13	58	08:30 (7)	21:19	26	06:14 (6)	22:13	47	06:16 (6)
10	08:55	08:01	06:49							06:23		06:52 (8)	05:07		05:46 (6)	04:18		05:12 (5)
	15:53	17:01	18:06							20:15	57	08:28 (7)	21:21	28	06:14 (6)	22:14	46	06:16 (6)
11	08:54	07:59	06:46							06:20		06:52 (8)	05:04		05:47 (6)	04:18		05:11 (5)
	15:55	17:04	18:09							20:17	56	08:27 (7)	21:23	28	06:15 (6)	22:15	46	06:16 (6)
12	08:53	07:57	06:44							06:17		06:50 (8)	05:02		05:46 (6)	04:17		05:12 (5)
	15:57	17:06	18:11							20:19	54	08:24 (7)	21:25	30	06:16 (6)	22:16	45	06:16 (6)
13	08:52	07:54	06:41							06:15		06:49 (8)	05:00		05:45 (6)	04:16		05:13 (5)
	15:59	17:09	18:13							20:22	50	08:21 (7)	21:27	32	06:17 (6)	22:17	44	06:16 (6)
14	08:51	07:52	06:38							06:12		06:50 (8)	04:58		05:44 (6)	04:16		05:12 (5)
	16:01	17:11	18:15							20:24	45	08:19 (7)	21:29	33	06:17 (6)	22:18	43	06:15 (6)
15	08:50	07:49	06:35							06:09		06:49 (8)	04:56		05:44 (6)	04:16		05:13 (5)
	16:03	17:13	18:18							20:26	37	08:14 (7)	21:31	33	06:17 (6)	22:19	42	06:15 (6)
16	08:48	07:47	06:33							06:07		06:48 (8)	04:54		05:43 (6)	04:15		05:13 (5)
	16:05	17:16	18:20							20:28	27	07:15 (8)	21:34	34	06:17 (6)	22:19	43	06:16 (6)
17	08:47	07:45	06:30							06:04		06:49 (8)	04:52		05:43 (6)	04:15		05:14 (5)
	16:07	17:18	18:22							20:30	26	07:15 (8)	21:36	34	06:17 (6)	22:20	41	06:16 (6)
18	08:46	07:42	06:27						07:13 (7)	06:01		06:49 (8)	04:50		05:43 (6)	04:15		05:14 (5)
	16:09	17:20	18:24	12					07:25 (7)	20:33	25	07:14 (8)	21:38	35	06:18 (6)	22:20	41	06:16 (6)
19	08:44	07:40	06:24						07:08 (7)	05:59		06:49 (8)	04:48		05:21 (5)	04:15		05:14 (5)
	16:11	17:23	18:27	20					07:28 (7)	20:35	25	07:14 (8)	21:40	39	06:18 (6)	22:21	41	06:16 (6)
20	08:43	07:37	06:21						07:05 (7)	05:56		06:49 (8)	04:46		05:19 (5)	04:15		05:14 (5)
	16:13	17:25	18:29	26					07:31 (7)	20:37	23	07:12 (8)	21:42	42	06:18 (6)	22:21	41	06:16 (6)
21	08:41	07:34	06:19						07:03 (7)	05:53		06:51 (8)	04:44		05:18 (5)	04:15		05:14 (5)
	16:15	17:27	18:31	30					07:33 (7)	20:39	21	07:12 (8)	21:43	44	06:18 (6)	22:21	41	06:16 (6)
22	08:40	07:32	06:16						07:01 (7)	05:51		06:51 (8)	04:42		05:16 (5)	04:15		05:14 (5)
	16:17	17:30	18:33	33					07:34 (7)	20:42	19	07:10 (8)	21:45	47	06:18 (6)	22:22	41	06:16 (6)
23	08:38	07:29	06:13						06:59 (7)	05:48		06:53 (8)	04:41		05:15 (5)	04:16		05:15 (5)
	16:20	17:32	18:35	36					07:35 (7)	20:44	15	07:08 (8)	21:47	50	06:19 (6)	22:22	41	06:17 (6)
24	08:36	07:27	06:10						06:58 (7)	05:46		06:55 (8)	04:39		05:13 (5)	04:16		05:15 (5)
	16:22	17:34	18:38	38					07:36 (7)	20:46	10	07:05 (8)	21:49	51	06:18 (6)	22:22	41	06:17 (6)
25	08:34	07:24	06:07						06:56 (7)	05:43			04:37		05:12 (5)	04:16		05:15 (5)
	16:24	17:37	18:40	40					07:36 (7)	20:48			21:51	52	06:18 (6)	22:22	41	06:17 (6)
26	08:33	07:22	06:05						06:56 (7)	05:40			04:36		05:11 (5)	04:17		05:15 (5)
	16:26	17:39	18:42	41					07:37 (7)	20:50			21:53	55	06:19 (6)	22:22	43	06:18 (6)
27	08:31	07:19	06:02						06:55 (7)	05:38			04:34		05:09 (5)	04:17		05:15 (5)
	16:29	17:41	18:44	42					07:37 (7)	20:53			21:54	55	06:18 (6)	22:21	43	06:18 (6)
28	08:29	07:16	05:59						06:54 (7)	05:35			04:33		05:09 (5)	04:18		05:16 (5)
	16:31	17:44	18:46	43					07:37 (7)	20:55			21:56	56	06:18 (6)	22:21	43	06:18 (6)
29	08:27		06:56						07:53 (7)	05:33			04:31		05:09 (5)	04:19		05:16 (5)
	16:33		19:49	44					08:37 (7)	20:57			21:58	55	06:18 (6)	22:21	43	06:19 (6)
30	08:25		06:53						07:52 (7)	05:30			04:30		05:09 (5)	04:19		05:15 (5)
	16:35		19:51	45					08:37 (7)	20:59			22:00	55	06:18 (6)	22:21	45	06:19 (6)
31	08:23		06:51						07:53 (7)				04:28		05:08 (5)			
	16:38		19:53	44					08:37 (7)				22:01	55	06:17 (6)			
Potential sun hours	227	262	365							429			515			539		1350
Total, worst case										494			922		1038			1350
Sun reduction										0.40			0.43		0.58			0.56
Oper. time red.										1.00			1.00		1.00			1.00
Wind dir. red.										1.00			1.00		1.00			1.00
Total reduction										0.40			0.43		0.58			0.56
Total, real										199			392		604			755

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Dzelzelš 162. km - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (781)
 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 (5)	05:09	05:56 (6)	06:15	06:51 (8)	07:19	07:28	08:33
	22:20	45 06:20 (6)	21:35	30 06:26 (6)	20:17	56 08:26 (7)	18:54	16:32	15:37
2	04:21	05:16 (5)	05:11	05:57 (6)	06:17	06:51 (8)	07:21	07:30	08:35
	22:20	46 06:20 (6)	21:33	28 06:25 (6)	20:15	57 08:27 (7)	18:51	16:30	15:36
3	04:22	05:16 (5)	05:13	05:57 (6)	06:19	06:52 (8)	07:23	07:32	08:37
	22:19	47 06:21 (6)	21:31	27 06:24 (6)	20:12	58 08:28 (7)	18:48	16:27	15:35
4	04:23	05:16 (5)	05:15	05:58 (6)	06:21	06:53 (8)	07:25	07:35	08:38
	22:18	49 06:22 (6)	21:29	25 06:23 (6)	20:09	56 08:28 (7)	18:45	16:25	15:34
5	04:24	05:16 (5)	05:18	05:59 (6)	06:23	06:55 (8)	07:27	07:37	08:40
	22:17	49 06:22 (6)	21:26	22 06:21 (6)	20:06	53 08:29 (7)	18:42	16:23	15:34
6	04:25	05:16 (5)	05:20	06:01 (6)	06:26	06:58 (8)	07:29	07:39	08:42
	22:17	50 06:23 (6)	21:24	19 06:20 (6)	20:04	47 08:29 (7)	18:40	16:21	15:33
7	04:26	05:16 (5)	05:22	06:03 (6)	06:28	07:47 (7)	07:31	07:41	08:43
	22:16	51 06:23 (6)	21:22	15 06:18 (6)	20:01	42 08:29 (7)	18:37	16:18	15:32
8	04:28	05:16 (5)	05:24	06:07 (6)	06:30	07:46 (7)	07:34	07:44	08:45
	22:15	52 06:23 (6)	21:19	7 06:14 (6)	19:58	44 08:30 (7)	18:34	16:16	15:31
9	04:29	05:16 (5)	05:26		06:32	07:45 (7)	07:36	07:46	08:46
	22:14	53 06:24 (6)	21:17		19:55	44 08:29 (7)	18:31	16:14	15:31
10	04:30	05:16 (5)	05:28		06:34	07:45 (7)	07:38	07:48	08:47
	22:13	53 06:24 (6)	21:15		19:52	44 08:29 (7)	18:29	16:12	15:30
11	04:32	05:17 (5)	05:30		06:36	07:44 (7)	07:40	07:51	08:49
	22:12	54 06:25 (6)	21:12		19:50	45 08:29 (7)	18:26	16:10	15:30
12	04:33	05:17 (5)	05:32		06:38	07:44 (7)	07:42	07:53	08:50
	22:10	53 06:25 (6)	21:10		19:47	45 08:29 (7)	18:23	16:08	15:30
13	04:35	05:17 (5)	05:34		06:40	07:44 (7)	07:45	07:55	08:51
	22:09	55 06:26 (6)	21:07		19:44	44 08:28 (7)	18:21	16:06	15:29
14	04:36	05:17 (5)	05:37		06:42	07:43 (7)	07:47	07:57	08:52
	22:08	56 06:27 (6)	21:05		19:41	45 08:28 (7)	18:18	16:04	15:29
15	04:38	05:17 (5)	05:39		06:45	07:43 (7)	07:49	08:00	08:54
	22:06	56 06:27 (6)	21:02		19:38	44 08:27 (7)	18:15	16:02	15:29
16	04:39	05:18 (5)	05:41		06:47	07:43 (7)	07:51	08:02	08:55
	22:05	55 06:27 (6)	21:00		19:36	43 08:26 (7)	18:13	16:00	15:29
17	04:41	05:19 (5)	05:43		06:49	07:43 (7)	07:53	08:04	08:55
	22:03	54 06:27 (6)	20:57		19:33	42 08:25 (7)	18:10	15:58	15:29
18	04:43	05:21 (5)	05:45		06:51	07:44 (7)	07:56	08:06	08:56
	22:02	53 06:28 (6)	20:55		19:30	40 08:24 (7)	18:07	15:56	15:29
19	04:44	05:22 (5)	05:47	07:01 (8)	06:53	07:45 (7)	07:58	08:09	08:57
	22:00	52 06:28 (6)	20:52	11 07:12 (8)	19:27	38 08:23 (7)	18:05	15:55	15:29
20	04:46	05:24 (5)	05:49	06:59 (8)	06:55	07:46 (7)	08:00	08:11	08:58
	21:59	50 06:28 (6)	20:50	15 07:14 (8)	19:24	36 08:22 (7)	18:02	15:53	15:30
21	04:48	05:25 (5)	05:52	06:57 (8)	06:57	07:47 (7)	08:02	08:13	08:59
	21:57	48 06:28 (6)	20:47	19 07:16 (8)	19:22	33 08:20 (7)	17:59	15:51	15:30
22	04:50	05:27 (5)	05:54	06:55 (8)	06:59	07:48 (7)	08:05	08:15	08:59
	21:55	46 06:28 (6)	20:44	22 07:17 (8)	19:19	30 08:18 (7)	17:57	15:50	15:31
23	04:52	05:29 (5)	05:56	06:54 (8)	07:01	07:49 (7)	08:07	08:17	09:00
	21:53	43 06:29 (6)	20:42	23 07:17 (8)	19:16	27 08:16 (7)	17:54	15:48	15:31
24	04:53	05:30 (5)	05:58	06:53 (8)	07:04	07:51 (7)	08:09	08:19	09:00
	21:51	40 06:28 (6)	20:39	25 07:18 (8)	19:13	22 08:13 (7)	17:52	15:46	15:32
25	04:55	05:32 (5)	06:00	06:52 (8)	07:06	07:54 (7)	07:12	08:21	09:00
	21:50	37 06:28 (6)	20:36	26 07:18 (8)	19:10	15 08:09 (7)	16:49	15:45	15:32
26	04:57	05:34 (6)	06:02	06:52 (8)	07:08		07:14	08:23	09:01
	21:48	34 06:28 (6)	20:34	26 07:18 (8)	19:07		16:47	15:44	15:33
27	04:59	05:34 (6)	06:04	06:51 (8)	07:10		07:16	08:25	09:01
	21:46	34 06:28 (6)	20:31	27 07:18 (8)	19:05		16:44	15:42	15:34
28	05:01	05:34 (6)	06:06	06:51 (8)	07:12		07:18	08:27	09:01
	21:44	33 06:27 (6)	20:28	37 08:16 (7)	19:02		16:42	15:41	15:35
29	05:03	05:34 (6)	06:09	06:50 (8)	07:14		07:21	08:29	09:01
	21:42	33 06:27 (6)	20:26	47 08:20 (7)	18:59		16:39	15:40	15:36
30	05:05	05:35 (6)	06:11	06:50 (8)	07:16		07:23	08:31	09:01
	21:40	32 06:27 (6)	20:23	51 08:22 (7)	18:56		16:37	15:39	15:37
31	05:07	05:36 (6)	06:13	06:50 (8)			07:25		09:01
	21:37	31 06:27 (6)	20:20	54 08:24 (7)			16:34		15:38
Potential sun hours	538		474		386		321	241	207
Total, worst case	1444		556		1050				
Sun reduction	0.47		0.50		0.46				
Oper. time red.	1.00		1.00		1.00				
Wind dir. red.	1.00		1.00		1.00				
Total reduction	0.47		0.50		0.46				
Total, real	679		280		485				

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Dzeni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (589)
 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		08:21		07:13	16:32 (2)	06:48	05:27	04:27
	15:39		16:40		17:46	20	16:52 (2)	19:55	22:02
2	09:00		08:19		07:11	16:33 (2)	06:45	05:25	04:25
	15:41		16:42		17:48	17	16:50 (2)	19:57	22:04
3	09:00		08:17		07:08	16:35 (2)	06:42	05:23	04:24
	15:42		16:44		17:50	13	16:48 (2)	19:59	22:05
4	08:59		08:15		07:05	16:40 (2)	06:39	05:20	04:23
	15:43		16:47		17:53	3	16:43 (2)	20:01	22:07
5	08:59	14:58 (4)	08:12		07:03		06:36	05:18	04:22
	15:45	1	14:59 (4)	16:49	17:55		20:04	21:10	22:08
6	08:58	14:58 (4)	08:10		07:00		06:34	05:15	04:21
	15:46	3	15:01 (4)	16:52	17:57		20:06	21:12	22:09
7	08:57	14:57 (4)	08:08		06:57		06:31	05:13	04:20
	15:48	6	15:03 (4)	16:54	17:59		20:08	21:14	22:11
8	08:57	14:57 (4)	08:06		06:54		06:28	05:11	04:19
	15:49	8	15:05 (4)	16:56	18:02		20:10	21:16	22:12
9	08:56	14:57 (4)	08:03		06:52		06:25	05:09	04:18
	15:51	10	15:07 (4)	16:59	18:04		20:12	21:19	22:13
10	08:55	14:58 (4)	08:01		06:49		06:23	05:06	04:18
	15:53	11	15:09 (4)	17:01	18:06		20:15	21:21	22:14
11	08:54	14:57 (4)	07:59		06:46		06:20	05:04	04:17
	15:55	14	15:11 (4)	17:03	18:08		20:17	21:23	22:15
12	08:53	14:57 (4)	07:56		06:43		06:17	05:02	04:17
	15:57	16	15:13 (4)	17:06	18:11		20:19	21:25	22:16
13	08:52	14:57 (4)	07:54		06:41		06:14	05:00	04:16
	15:58	18	15:15 (4)	17:08	18:13		20:21	21:27	22:17
14	08:51	14:57 (4)	07:52		06:38		06:12	04:58	04:16
	16:00	21	15:18 (4)	17:11	18:15		20:24	21:29	22:18
15	08:49	14:57 (4)	07:49	16:38 (2)	06:35		06:09	04:56	04:15
	16:02	23	15:20 (4)	17:13	2	16:40 (2)	20:26	21:31	22:18
16	08:48	14:58 (4)	07:47	16:36 (2)	06:32		06:06	04:53	04:15
	16:04	23	15:21 (4)	17:15	7	16:43 (2)	20:28	21:33	22:19
17	08:47	14:58 (4)	07:44	16:34 (2)	06:29		06:04	04:51	04:15
	16:06	23	15:21 (4)	17:18	11	16:45 (2)	20:30	21:35	22:20
18	08:45	14:58 (4)	07:42	16:32 (2)	06:27		06:01	04:50	04:15
	16:08	23	15:21 (4)	17:20	15	16:47 (2)	20:32	21:37	22:20
19	08:44	14:58 (4)	07:39	16:32 (2)	06:24		05:58	04:48	04:15
	16:10	23	15:21 (4)	17:22	19	16:51 (2)	20:35	21:39	22:21
20	08:42	14:59 (4)	07:37	16:31 (2)	06:21		05:56	04:46	04:15
	16:13	24	15:23 (4)	17:25	22	16:53 (2)	20:37	21:41	22:21
21	08:41	14:59 (4)	07:34	16:30 (2)	06:18		05:53	04:44	04:15
	16:15	24	15:23 (4)	17:27	25	16:55 (2)	20:39	21:43	22:21
22	08:39	15:00 (4)	07:32	16:30 (2)	06:16		05:50	04:42	04:15
	16:17	23	15:23 (4)	17:29	26	16:56 (2)	20:41	21:45	22:21
23	08:38	15:00 (4)	07:29	16:30 (2)	06:13		05:48	04:40	04:15
	16:19	23	15:23 (4)	17:32	26	16:56 (2)	20:43	21:47	22:22
24	08:36	15:01 (4)	07:26	16:29 (2)	06:10		05:45	04:39	04:15
	16:21	22	15:23 (4)	17:34	26	16:55 (2)	20:46	21:49	22:22
25	08:34	15:02 (4)	07:24	16:30 (2)	06:07		05:43	04:37	04:16
	16:24	20	15:22 (4)	17:36	26	16:56 (2)	20:48	21:51	22:22
26	08:32	15:03 (4)	07:21	16:30 (2)	06:04		05:40	04:35	04:16
	16:26	19	15:22 (4)	17:39	25	16:55 (2)	20:50	21:53	22:21
27	08:31	15:03 (4)	07:19	16:30 (2)	06:02		05:37	04:34	04:17
	16:28	18	15:21 (4)	17:41	24	16:54 (2)	20:52	21:54	22:21
28	08:29	15:05 (4)	07:16	16:31 (2)	05:59		05:35	04:32	04:17
	16:30	15	15:20 (4)	17:43	22	16:53 (2)	20:55	21:56	22:21
29	08:27	15:07 (4)			06:56		05:32	04:31	04:18
	16:33	12	15:19 (4)		19:48		20:57	21:58	22:21
30	08:25	15:10 (4)			06:53		05:30	04:29	04:19
	16:35	6	15:16 (4)		19:50		20:59	21:59	22:20
31	08:23				06:50			04:28	
	16:37				19:53			22:01	
Potential sun hours	227		262		365		429	515	539
Total, worst case	429		276		53				
Sun reduction	0.11		0.19		0.40				
Oper. time red.	1.00		1.00		1.00				
Wind dir. red.	1.00		1.00		1.00				
Total reduction	0.11		0.19		0.40				
Total, real	47		54		21				

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Dzeni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (589)
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	05:09	06:15	07:18		07:27	08:33
	22:20	21:35	20:17	18:53		16:32	14:39 (4)
2	04:21	05:11	06:17	07:20		07:30	15:37 14 14:53 (4)
	22:19	21:33	20:14	18:50		16:29	08:35 14:40 (4)
3	04:21	05:13	06:19	07:23		07:32	15:36 12 14:52 (4)
	22:19	21:31	20:12	18:48		16:27	08:36 14:40 (4)
4	04:22	05:15	06:21	07:25		07:34	15:35 10 14:50 (4)
	22:18	21:28	20:09	18:45		16:25	08:38 14:41 (4)
5	04:24	05:17	06:23	07:27		07:37	15:34 8 14:49 (4)
	22:17	21:26	20:06	18:42		16:23	08:40 14:42 (4)
6	04:25	05:19	06:25	07:29		07:39	15:33 6 14:48 (4)
	22:16	21:24	20:03	18:39		16:20	08:41 14:44 (4)
7	04:26	05:21	06:27	07:31		07:41	15:32 3 14:47 (4)
	22:16	21:22	20:01	18:37		16:18	08:43 14:45 (4)
8	04:27	05:23	06:29	07:33		07:43	15:32 2 14:47 (4)
	22:15	21:19	19:58	18:34		16:16	08:44
9	04:28	05:26	06:32	07:36		07:46	15:31
	22:14	21:17	19:55	18:31		16:14	08:46
10	04:30	05:28	06:34	07:38		17:12 (2)	15:31
	22:12	21:14	19:52	18:28	8	17:20 (2)	08:47
11	04:31	05:30	06:36	07:40		17:08 (2)	15:30
	22:11	21:12	19:49	18:26	15	17:23 (2)	08:49
12	04:33	05:32	06:38	07:42		17:06 (2)	15:30
	22:10	21:10	19:47	18:23	18	17:24 (2)	08:50
13	04:34	05:34	06:40	07:44		17:05 (2)	14:41 (4) 08:50
	22:09	21:07	19:44	18:20	21	17:26 (2)	14:47 (4) 15:29
14	04:36	05:36	06:42	07:47		17:03 (2)	14:39 (4) 08:51
	22:07	21:05	19:41	18:18	23	17:26 (2)	14:51 (4) 15:29
15	04:37	05:38	06:44	07:49		17:02 (2)	14:38 (4) 08:52
	22:06	21:02	19:38	18:15	24	17:26 (2)	14:53 (4) 15:29
16	04:39	05:40	06:46	07:51		17:02 (2)	14:36 (4) 08:53
	22:05	21:00	19:35	18:12	25	17:27 (2)	14:36 (4) 15:29
17	04:40	05:43	06:48	07:53		17:01 (2)	14:55 (4) 15:29
	22:03	20:57	19:33	18:10	26	17:27 (2)	14:35 (4) 08:55
18	04:42	05:45	06:51	07:55		17:01 (2)	14:55 (4) 15:29
	22:02	20:54	19:30	18:07	26	17:27 (2)	14:35 (4) 08:56
19	04:44	05:47	06:53	07:58		17:01 (2)	14:57 (4) 15:29
	22:00	20:52	19:27	18:04	26	17:27 (2)	14:34 (4) 08:57
20	04:46	05:49	06:55	08:00		17:00 (2)	14:57 (4) 15:29
	21:58	20:49	19:24	18:02	26	17:26 (2)	14:35 (4) 08:58
21	04:47	05:51	06:57	08:02		17:01 (2)	14:58 (4) 15:29
	21:57	20:47	19:21	17:59	25	17:26 (2)	14:34 (4) 08:58
22	04:49	05:53	06:59	08:04		17:01 (2)	14:58 (4) 15:30
	21:55	20:44	19:18	17:56	21	17:22 (2)	14:35 (4) 08:59
23	04:51	05:55	07:01	08:07		17:02 (2)	14:59 (4) 15:30
	21:53	20:41	19:16	17:54	18	17:20 (2)	14:35 (4) 08:59
24	04:53	05:58	07:03	08:09		17:03 (2)	14:58 (4) 15:31
	21:51	20:39	19:13	17:51	14	17:17 (2)	14:35 (4) 09:00
25	04:55	06:00	07:05	07:11		16:05 (2)	14:58 (4) 15:31
	21:49	20:36	19:10	16:49	10	16:15 (2)	14:36 (4) 09:00
26	04:57	06:02	07:08	07:14		16:06 (2)	14:59 (4) 15:32
	21:47	20:33	19:07	16:46	6	16:12 (2)	14:36 (4) 09:00
27	04:59	06:04	07:10	07:16		15:43	14:36 (4) 15:33
	21:45	20:31	19:04	16:44		15:42	14:36 (4) 09:01
28	05:01	06:06	07:12	07:18		15:41	14:59 (4) 15:34
	21:43	20:28	19:02	16:41		15:41	14:37 (4) 09:01
29	05:03	06:08	07:14	07:20		15:41	14:58 (4) 15:35
	21:41	20:25	18:59	16:39		15:39	14:38 (4) 09:01
30	05:05	06:10	07:16	07:23		15:39	14:56 (4) 15:35
	21:39	20:23	18:56	16:37		15:38	14:38 (4) 09:01
31	05:07	06:13		07:25			14:55 (4) 15:37
	21:37	20:20		16:34			09:00
Potential sun hours	538	474	386	321		241	15:38
Total, worst case				332		376	207
Sun reduction				0.28		0.08	55
Oper. time red.				1.00		1.00	0.06
Wind dir. red.				1.00		1.00	1.00
Total reduction				0.28		0.08	0.06
Total, real				94		29	3

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza jela 1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (519)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 10 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (545)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 11 (94010030201001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (536)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
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14	08:51 16:00	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	08:53 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:56 15:29
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20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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31	08:23 16:37		05:50 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	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 11 (94010030201005) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (571)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 12 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (547)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 13 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (516)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 14 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (566)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 15 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (525)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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31	08:23 16:37		05:50 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	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 16 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (515)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 17 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (528)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	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	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 18 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (527)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 18A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (567)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	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	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 19 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (530)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:23	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:24	06:30	07:34	07:44	08:45
	15:50	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:19	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:11	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:48	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
29	08:27		06:56	05:33	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:36
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:37	20:20		16:34		15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 20 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (546)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:23	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:24	06:30	07:34	07:44	08:45
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9	08:56	08:04	06:52	06:25	05:09	04:19	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:11	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:48	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
29	08:27		06:56	05:33	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:36
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 20A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (538)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	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	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza iela 22 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (565)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	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	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
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Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza jela 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (544)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza jela 4 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (564)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza jela 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (548)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza jela 6 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (511)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza jela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (526)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:06	08:51 15:29
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15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
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19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	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 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
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Total, worst case												
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Table layout: For each day in each month the following matrix apply

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza jela 8 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (532)
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
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2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Darza jela 9 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (552)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Dumini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (455)
 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		13:18 (11)	08:21		14:35 (4)	07:13			06:48		18:14 (2)	05:28		04:27			
	15:39	31	14:53 (12)	16:40	64	15:55 (13)	17:46			19:55	46	19:00 (2)	21:01		22:02			
2	09:00		13:19 (11)	08:19		14:36 (4)	07:11			06:45		18:13 (2)	05:25		04:25			
	15:41	30	14:54 (12)	16:42	65	15:56 (13)	17:48			19:57	47	19:00 (2)	21:03		22:04			
3	09:00		13:21 (11)	08:17		14:36 (4)	07:08			06:42		18:12 (2)	05:23		04:24			
	15:42	30	14:56 (12)	16:44	64	15:56 (13)	17:50			19:59	48	19:00 (2)	21:06		22:05			
4	08:59		13:23 (11)	08:15		14:36 (4)	07:05			06:39		18:11 (2)	05:20		04:23			
	15:43	28	14:58 (12)	16:47	62	15:55 (13)	17:53			20:01	48	18:59 (2)	21:08		22:07			
5	08:59		14:34 (12)	08:12		14:37 (4)	07:03			06:36		18:12 (2)	05:18		04:22			
	15:45	24	14:58 (12)	16:49	60	15:55 (13)	17:55			20:04	48	19:00 (2)	21:10		22:08			
6	08:58		14:34 (12)	08:10		14:36 (4)	07:00			06:34		18:11 (2)	05:16		04:21			
	15:46	25	14:59 (12)	16:52	62	16:16 (14)	17:57			20:06	48	18:59 (2)	21:12		22:09			
7	08:57		14:35 (12)	08:08		14:37 (4)	06:57			06:31		18:11 (2)	05:13		04:20			
	15:48	25	15:00 (12)	16:54	62	16:19 (14)	17:59			20:08	48	18:59 (2)	21:14		22:11			
8	08:57		14:35 (12)	08:06		14:37 (4)	06:54			06:28		18:11 (2)	05:11		04:19			
	15:50	26	15:03 (12)	17:06	61	16:22 (14)	18:02			20:10	47	18:58 (2)	21:16		22:12			
9	08:56		14:35 (12)	08:03		14:39 (4)	06:52			06:25		18:11 (2)	05:09		04:19			
	15:51	26	15:01 (12)	16:59	56	16:25 (14)	18:04			20:13	47	18:58 (2)	21:19		22:13			
10	08:55		14:36 (12)	08:01		14:39 (4)	06:49		17:30 (3)	06:23		18:11 (2)	05:06		04:18			
	15:53	26	15:02 (12)	17:01	58	16:27 (14)	18:06	6	17:36 (3)	20:15	46	18:57 (2)	21:21		22:14			
11	08:54		14:35 (12)	07:59		14:40 (4)	06:46		17:28 (3)	06:20		18:11 (2)	05:04		04:17			
	15:55	27	15:02 (12)	17:03	61	16:30 (14)	18:08	12	17:40 (3)	20:17	44	18:55 (2)	21:23		22:15			
12	08:53		14:36 (12)	07:56		14:41 (4)	06:43		17:26 (3)	06:17		18:13 (2)	05:02		04:17			
	15:57	27	15:03 (12)	17:06	60	16:30 (14)	18:11	16	17:42 (3)	20:19	42	18:55 (2)	21:25		22:16			
13	08:52		14:36 (12)	07:54		14:43 (4)	06:41		17:25 (3)	06:14		18:13 (2)	05:00		04:16			
	15:58	27	15:03 (12)	17:08	57	16:31 (14)	18:13	19	17:44 (3)	20:21	41	18:54 (2)	21:27		22:17			
14	08:51		14:36 (12)	07:52		14:44 (4)	06:38		17:24 (3)	06:12		18:13 (2)	04:58		04:16			
	16:00	28	15:04 (12)	17:11	55	16:31 (14)	18:15	22	17:46 (3)	20:24	39	18:52 (2)	21:29		22:18			
15	08:49		14:36 (12)	07:49		14:45 (4)	06:35		17:23 (3)	06:09		18:15 (2)	04:56		04:15			
	16:02	28	15:04 (12)	17:13	53	16:31 (14)	18:17	24	17:47 (3)	20:26	36	18:51 (2)	21:31		22:18			
16	08:48		14:37 (12)	07:47		14:48 (4)	06:32		17:22 (3)	06:06		18:16 (2)	04:54		04:15			
	16:04	28	15:05 (12)	17:15	49	16:32 (14)	18:20	25	17:47 (3)	20:28	33	18:49 (2)	21:33		22:19			
17	08:47		14:37 (12)	07:44		14:52 (4)	06:30		17:23 (3)	06:04		18:18 (2)	04:52		04:15			
	16:06	30	15:07 (4)	17:18	40	16:31 (14)	18:22	24	17:47 (3)	20:30	30	18:48 (2)	21:35		22:20			
18	08:45		14:37 (12)	07:42		16:05 (14)	06:27		17:23 (3)	06:01		18:19 (2)	04:50		04:15			
	16:08	31	15:08 (4)	17:20	26	16:31 (14)	18:24	23	17:46 (3)	20:32	27	18:46 (2)	21:37		22:20			
19	08:44		14:38 (12)	07:39		16:05 (14)	06:24		17:23 (3)	05:58		18:21 (2)	04:48		04:15			
	16:11	31	15:09 (4)	17:22	26	16:31 (14)	18:26	23	17:46 (3)	20:35	22	18:43 (2)	21:39		22:21			
20	08:42		14:38 (4)	07:37		16:05 (14)	06:21		17:23 (3)	05:56		18:24 (2)	04:46		04:15			
	16:13	33	15:11 (4)	17:25	25	16:30 (14)	18:28	21	17:44 (3)	20:37	16	18:40 (2)	21:41		22:21			
21	08:41		14:37 (4)	07:34		16:05 (14)	06:18		17:23 (3)	05:53			04:44		04:15			
	16:15	35	15:12 (4)	17:27	23	16:28 (14)	18:31	24	17:47 (2)	20:39			21:43		22:21			
22	08:39		14:37 (4)	07:32		16:07 (14)	06:16		17:25 (3)	05:50			04:42		04:15			
	16:17	35	15:12 (4)	17:29	21	16:28 (14)	18:33	26	17:51 (2)	20:41			21:45		22:21			
23	08:38		14:37 (4)	07:29		16:08 (14)	06:13		17:26 (2)	05:48			04:40		04:15			
	16:19	40	15:40 (13)	17:32	18	16:26 (14)	18:35	27	17:53 (2)	20:43			21:47		22:21			
24	08:36		14:36 (4)	07:26		16:10 (14)	06:10		17:23 (2)	05:45			04:39		04:16			
	16:21	46	15:43 (13)	17:34	13	16:23 (14)	18:37	32	17:55 (2)	20:46			21:49		22:22			
25	08:34		14:36 (4)	07:24		16:16 (14)	06:07		17:21 (2)	05:43			04:37		04:16			
	16:24	50	15:45 (13)	17:36	3	16:19 (14)	18:39	35	17:56 (2)	20:48			21:51		22:22			
26	08:32		14:36 (4)	07:21			06:04		17:19 (2)	05:40			04:35		04:16			
	16:26	54	15:48 (13)	17:39			18:42	38	17:57 (2)	20:50			21:53		22:21			
27	08:31		14:35 (4)	07:19			06:02		17:18 (2)	05:38			04:34		04:17			
	16:28	58	15:50 (13)	17:41			18:44	40	17:58 (2)	20:52			21:54		22:21			
28	08:29		14:35 (4)	07:16			05:59		17:17 (2)	05:35			04:32		04:18			
	16:30	60	15:52 (13)	17:43			18:46	42	17:59 (2)	20:55			21:56		22:21			
29	08:27		14:35 (4)				06:56		18:16 (2)	05:32			04:31		04:18			
	16:33	64	15:55 (13)				19:48	43	18:59 (2)	20:57			21:58		22:21			
30	08:25		14:35 (4)				06:53		18:15 (2)	05:30			04:29		04:19			
	16:35	65	15:56 (13)				19:50	45	19:00 (2)	20:59			21:59		22:20			
31	08:23		14:36 (4)				06:50		18:13 (2)				04:28					
	16:37	64	15:56 (13)				19:53	47	19:00 (2)				22:01					
Potential sun hours	227			262		365			429			515		539				
Total, worst case		1132			1144		614		803									
Sun reduction		0.11			0.19		0.40		0.43									
Oper. time red.		1.00			1.00		1.00		1.00									
Wind dir. red.		1.00			1.00		1.00		1.00									
Total reduction		0.11			0.19		0.40		0.43									
Total, real		123			222		247		342									

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Dumini - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (455)
 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	05:09	06:15	18:10 (2)	07:18	18:05 (3)
	22:20	21:35	20:17	18:54 (2)	18:53	17
2	04:21	05:11	06:17	18:09 (2)	07:20	18:06 (3)
	22:19	21:33	20:14	18:55 (2)	18:50	13
3	04:22	05:13	06:19	18:09 (2)	07:23	18:07 (3)
	22:19	21:31	20:12	18:56 (2)	18:48	9
4	04:23	05:15	06:21	18:09 (2)	07:25	18:09 (3)
	22:18	21:28	20:09	18:56 (2)	18:45	4
5	04:24	05:17	06:23	18:08 (2)	07:27	18:13 (3)
	22:17	21:26	20:06	18:56 (2)	18:42	
6	04:25	05:19	06:25	18:07 (2)	07:29	
	22:16	21:24	20:03	18:55 (2)	18:39	
7	04:26	05:21	06:27	18:07 (2)	07:31	
	22:16	21:22	20:01	18:55 (2)	18:37	
8	04:27	05:24	06:30	18:06 (2)	07:33	
	22:15	21:19	19:58	18:55 (2)	18:34	
9	04:28	05:26	06:32	18:06 (2)	07:36	
	22:14	21:17	19:55	18:54 (2)	18:31	
10	04:30	05:28	06:34	18:06 (2)	07:38	
	22:12	21:14	19:52	18:53 (2)	18:28	
11	04:31	05:30	06:36	18:06 (2)	07:40	
	22:11	21:12	19:49	18:53 (2)	18:26	
12	04:33	05:32	06:38	18:06 (2)	07:42	
	22:10	21:10	19:47	18:52 (2)	18:23	
13	04:34	05:34	06:40	18:06 (2)	07:44	
	22:09	21:07	19:44	18:51 (2)	18:20	
14	04:36	05:36	06:42	18:06 (2)	07:47	
	22:07	21:05	19:41	18:50 (2)	18:18	
15	04:37	05:38	06:44	18:06 (2)	07:49	
	22:06	21:02	19:38	18:49 (2)	18:15	
16	04:39	05:41	06:46	18:07 (2)	07:51	
	22:05	21:00	19:35	18:47 (2)	18:12	
17	04:41	05:43	06:49	18:08 (2)	07:53	16:44 (14)
	22:03	20:57	19:33	18:46 (2)	18:10	9
18	04:42	05:45	06:51	18:08 (2)	07:55	16:41 (14)
	22:02	20:55	19:30	18:44 (2)	18:07	15
19	04:44	05:47	06:53	18:10 (2)	07:58	16:39 (14)
	22:00	20:52	19:27	18:42 (2)	18:04	19
20	04:46	05:49	06:55	18:11 (2)	08:00	16:37 (14)
	21:58	20:49	19:24	18:40 (2)	18:02	21
21	04:48	05:51	06:57	18:10 (3)	08:02	16:36 (14)
	21:57	20:47	19:21	18:37 (2)	17:59	24
22	04:49	05:53	06:59	18:09 (3)	08:04	17:00 (14)
	21:55	20:44	19:18	18:34 (2)	17:57	25
23	04:51	05:55	07:01	18:08 (3)	08:07	16:35 (14)
	21:53	20:41	19:16	18:29 (3)	17:54	26
24	04:53	05:58	07:03	18:07 (3)	08:09	16:34 (14)
	21:51	20:39	19:13	18:29 (3)	17:51	27
25	04:55	06:00	07:05	18:06 (3)	07:11	14:21 (4)
	21:49	20:36	19:10	18:29 (3)	16:49	42
26	04:57	06:02	07:08	18:05 (3)	07:14	14:17 (4)
	21:47	20:33	19:07	18:29 (3)	16:46	50
27	04:59	06:04	07:10	18:04 (3)	07:16	14:15 (4)
	21:45	20:31	19:04	18:29 (3)	16:44	53
28	05:01	06:06	07:12	18:04 (3)	07:18	14:13 (4)
	21:43	20:28	19:02	18:28 (3)	16:41	57
29	05:03	06:08	07:14	18:04 (3)	07:20	14:12 (4)
	21:41	20:25	18:59	18:27 (3)	16:39	59
30	05:05	06:10	07:16	18:05 (3)	07:23	14:10 (4)
	21:39	20:23	18:54 (2)	18:25 (3)	16:37	60
31	05:07	06:13	07:18		07:25	14:10 (4)
	21:37	20:20	18:54 (2)		16:34	60
Potential sun hours	538	474	386	321	241	207
Total, worst case		295	1106	590	1453	905
Sun reduction		0.50	0.46	0.28	0.08	0.06
Oper. time red.		1.00	1.00	1.00	1.00	1.00
Wind dir. red.		1.00	1.00	1.00	1.00	1.00
Total reduction		0.50	0.46	0.28	0.08	0.06
Total, real		149	511	167	114	56

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Gailenes - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (788)
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	09:01	11:11 (5)	08:21	09:33 (1)	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33	09:16 (1)
	15:39	24	11:35 (5)	16:40	22	09:55 (1)	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32
2	09:00	11:13 (5)	08:19	09:33 (1)	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21	07:30	08:35	09:18 (1)
	15:41	23	11:36 (5)	16:42	20	09:53 (1)	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30
3	09:00	11:13 (5)	08:17	09:35 (1)	07:08	06:42	05:23	04:24	04:22	05:13	06:19	07:23	07:32	08:37	09:20 (1)
	15:42	22	11:35 (5)	16:45	17	09:52 (1)	17:50	20:00	21:06	22:06	22:19	21:31	20:12	18:48	16:27
4	08:59	11:14 (5)	08:15	09:37 (1)	07:05	06:39	05:20	04:23	04:23	05:15	06:21	07:25	07:35	08:38	09:22 (1)
	15:43	21	11:35 (5)	16:47	13	09:50 (1)	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25
5	08:59	11:15 (5)	08:13	09:41 (1)	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40	09:24 (1)
	15:45	20	11:35 (5)	16:49	5	09:46 (1)	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23
6	08:58	11:16 (5)	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	7	09:10 (1)	08:42
	15:46	19	11:35 (5)	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:20	15:33	19
7	08:58	09:38 (1)	08:08	06:57	06:31	05:13	04:20	04:26	05:22	06:28	07:31	07:41	14	09:07 (1)	08:43
	15:48	18	11:34 (5)	16:54	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32	20
8	08:57	09:37 (1)	08:06	06:55	06:28	05:11	04:19	04:27	05:24	06:30	07:34	07:44	17	09:05 (1)	08:45
	15:50	20	11:34 (5)	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31	21
9	08:56	09:36 (1)	08:04	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	07:46	20	09:04 (1)	08:46
	15:51	20	11:33 (5)	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31	23
10	08:55	09:35 (1)	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	21	09:03 (1)	08:48
	15:53	19	11:32 (5)	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:29	16:12	15:30	23
11	08:54	09:34 (1)	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	22	09:02 (1)	08:49
	15:55	16	11:30 (5)	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30	24
12	08:53	09:32 (1)	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	23	09:02 (1)	08:50
	15:57	15	09:47 (1)	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29	24
13	08:52	09:31 (1)	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	25	09:01 (1)	08:51
	15:59	17	09:48 (1)	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29	25
14	08:51	09:29 (1)	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	26	09:01 (1)	08:53
	16:00	20	09:49 (1)	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29	26
15	08:50	09:28 (1)	07:49	06:35	06:09	04:56	04:15	04:37	05:39	06:44	07:49	08:00	27	09:01 (1)	08:54
	16:02	22	09:50 (1)	17:13	18:18	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29	31
16	08:48	09:27 (1)	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	27	09:01 (1)	08:55
	16:04	24	09:51 (1)	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29	33
17	08:47	09:27 (1)	07:45	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:53	08:04	28	09:02 (1)	08:56
	16:06	24	09:51 (1)	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29	34
18	08:46	09:27 (1)	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	28	09:01 (1)	08:56
	16:09	26	09:53 (1)	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29	35
19	08:44	09:27 (1)	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	29	09:02 (1)	08:57
	16:11	26	09:53 (1)	17:23	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29	36
20	08:43	09:27 (1)	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	29	09:02 (1)	08:58
	16:13	27	09:54 (1)	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:30	36
21	08:41	09:27 (1)	07:34	06:19	05:53	04:44	04:15	04:48	05:51	06:57	08:02	08:13	29	09:03 (1)	08:59
	16:15	27	09:54 (1)	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30	37
22	08:40	09:27 (1)	07:32	06:16	05:51	04:42	04:15	04:49	05:53	06:59	08:05	08:15	29	09:03 (1)	08:59
	16:17	28	09:55 (1)	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30	37
23	08:38	09:27 (1)	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	29	09:03 (1)	09:00
	16:19	28	09:55 (1)	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31	37
24	08:36	09:27 (1)	07:27	06:10	05:45	04:39	04:16	04:53	05:58	07:03	08:09	08:19	26	09:04 (1)	09:00
	16:22	28	09:55 (1)	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:46	15:31	36
25	08:34	09:28 (1)	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	29	09:05 (1)	09:00
	16:24	28	09:56 (1)	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32	35
26	08:33	09:28 (1)	07:21	06:05	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	29	09:05 (1)	09:01
	16:26	28	09:56 (1)	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:47	15:43	15:33	34
27	08:31	09:29 (1)	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	24	09:07 (1)	09:01
	16:28	27	09:56 (1)	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34	34
28	08:29	09:29 (1)	07:16	05:59	05:35	04:32	04:18	05:01	06:06	07:12	07:18	08:27	23	09:09 (1)	09:01
	16:31	27	09:56 (1)	17:44	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35	30
29	08:27	09:29 (1)	77	06:56	05:33	04:31	04:18	05:03	06:08	07:14	07:21	08:29	20	09:11 (1)	09:01
	16:33	26	09:55 (1)	17:47	19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:36	28
30	08:25	09:30 (1)	77	06:53	05:30	04:29	04:19	05:05	06:11	07:16	07:23	08:31	17	09:13 (1)	09:01
	16:35	25	09:55 (1)	17:50	19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:35	25
31	08:23	09:31 (1)	77	06:51	05:28	04:28	04:17	05:07	06:13	07:18	07:25	08:33	15	09:14 (1)	09:01
	16:38	24	09:55 (1)	17:53	19:53	21:01	22:01	22:21	21:38	20:20	18:59	16:34	15:34	15:32	24
Potential sun hours	227	262	365	429	515	539	538	475	386	321	241	207	860	0.06	0.06
Total, worst case	719	77	365	429	515	539	538	475	386	321	241	207	860	0.06	0.06
Sun reduction	0.11	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Oper. time red.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Wind dir. red.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total reduction	0.11	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Total, real	78	15	365	429	515	539	538	475	386	321	241	207	860	0.06	0.06

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Gaisini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (480)
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 16:40	15:50 (2) 16:03 (2)	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:02	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	
2	09:00 15:40	08:19 16:42	15:49 (2) 16:06 (2)	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	
3	09:00 15:42	08:17 16:44	15:49 (2) 16:09 (2)	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	
4	08:59 15:43	08:15 16:47	15:48 (2) 16:11 (2)	07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	
5	08:59 15:45	08:12 16:49	15:48 (2) 16:13 (2)	07:03 17:55	06:36 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	
6	08:58 15:46	08:10 16:52	15:48 (2) 16:12 (2)	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	
7	08:57 15:48	08:08 16:54	15:48 (2) 16:13 (2)	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	
8	08:57 15:49	08:06 16:56	15:48 (2) 16:12 (2)	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	05:23 22:15	06:29 21:19	07:33 19:58	07:33 18:34	
9	08:56 15:51	08:03 16:59	15:49 (2) 16:13 (2)	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	05:26 22:14	06:32 21:17	07:36 19:55	07:36 18:31	
10	08:55 15:53	08:01 17:01	15:49 (2) 16:12 (2)	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14	05:28 22:13	06:34 21:14	07:38 19:52	07:38 18:28	
11	08:54 15:55	07:59 17:03	15:50 (2) 16:12 (2)	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	05:30 22:11	06:36 21:12	07:40 19:49	07:40 18:26	
12	08:53 15:56	07:56 17:06	15:50 (2) 16:11 (2)	06:43 18:11	06:17 20:19	05:02 21:25	04:17 22:16	05:32 22:10	06:38 21:10	07:42 19:47	07:42 18:23	
13	08:52 15:58	07:54 17:08	15:52 (2) 16:10 (2)	06:41 18:13	06:14 20:21	05:00 21:27	04:16 22:17	05:34 22:09	06:40 21:07	07:44 19:44	07:44 18:20	
14	08:51 16:00	07:52 17:11	15:53 (2) 16:08 (2)	06:38 18:15	06:12 20:24	04:58 21:29	04:16 22:18	05:36 22:08	06:42 21:05	07:47 19:41	07:47 18:18	
15	08:49 16:02	07:49 17:13	15:55 (2) 16:06 (2)	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	05:38 22:06	06:44 21:02	07:49 19:38	07:49 18:15	
16	08:48 16:04	07:47 17:15		06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	05:40 22:05	06:46 21:00	07:51 19:35	07:51 18:12	
17	08:47 16:06	07:44 17:18		06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	05:43 22:03	06:48 20:57	07:53 19:33	07:53 18:10	
18	08:45 16:08	07:42 17:20		06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	05:45 22:02	06:51 20:55	07:55 19:30	07:55 18:07	
19	08:44 16:10	07:39 17:22		06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21	05:47 22:00	06:53 20:52	07:58 19:27	07:58 18:04	
20	08:42 16:13	07:37 17:25		06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	05:49 21:58	06:55 20:49	08:00 19:24	08:00 18:02	
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	05:51 21:57	06:57 20:47	08:02 19:21	08:02 17:59	
22	08:39 16:17	07:32 17:29		06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	05:53 21:55	06:59 20:44	08:04 19:18	08:04 17:56	
23	08:38 16:19	07:29 17:32		06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:22	05:55 21:53	07:01 20:41	08:07 19:16	08:07 17:54	
24	08:36 16:21	07:26 17:34		06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	05:58 21:51	07:03 20:39	08:09 19:13	08:09 17:51	
25	08:34 16:24	07:24 17:36		06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:22	06:00 21:49	07:05 20:36	07:11 19:10	07:11 16:49	
26	08:32 16:26	07:21 17:39		06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:21	06:02 21:47	07:08 20:33	07:14 19:07	07:14 16:46	
27	08:31 16:28	07:19 17:41		06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:21	06:04 21:46	07:10 20:31	07:16 19:04	07:16 16:44	
28	08:29 16:30	07:16 17:43		05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	06:06 21:43	07:12 20:28	07:18 19:02	07:18 16:41	
29	08:27 16:33	15:53 (2) 15:55 (2)		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	06:08 21:41	07:14 20:25	07:20 18:59	07:20 16:39	
30	08:25 16:35	15:52 (2) 15:58 (2)		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	06:10 21:39	07:16 20:23	07:23 18:56	07:23 16:37	
31	08:23 16:37	15:51 (2) 16:01 (2)		06:50 19:53		04:28 22:01		06:13 21:37	07:25 20:20	07:25 16:34	07:25 15:42 (2)	
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case	18											
Sun reduction	0.11	0.19								0.28	0.08	
Oper. time red.	1.00	1.00								1.00	1.00	
Wind dir. red.	1.00	1.00								1.00	1.00	
Total reduction	0.11	0.19								0.28	0.08	
Total, real	2	59								27	19	

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Gaujas iela 11 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (577)
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 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:49	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:52 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	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	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:25	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Gravas - Shadow Receptor: 1.0 x 1.0 Azimuth: 3.1° Slope: 90.0° (479)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Indranu iela 5 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (690)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 20:00	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
4	08:59 15:43	08:15 16:47	07:06 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	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:40	07:39 16:20	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	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
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	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
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:38		05:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Indranu iela 5 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (765)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Indranu iela 8 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (741)
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

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14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:39 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:16	06:33 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:11	07:40 17:23	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:34 17:27	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:54 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:34	06:10 18:38	05:45 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:47	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	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	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:38		05:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jasmini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (800)
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 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:49	07:40 18:26	07:51 16:09	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:52 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	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	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:39 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:25	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jaunpaukas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (593)
 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 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:47 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:49	07:40 18:26	07:51 16:09	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
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15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:55 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:01	08:54 15:29
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17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:55 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:08 15:54	08:57 15:29
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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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:39 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:18	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
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30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
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Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jauntilgali - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (787)
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	09:01	11:26 (5)	08:21	09:39 (1)	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33	09:16 (1)
15:39	24	11:50 (5)	16:40	10:01 (1)	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37	11:28 (5)
2	09:00	11:27 (5)	08:19	09:41 (1)	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21	07:30	08:35	09:18 (1)
15:41	24	11:51 (5)	16:42	10:01 (1)	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:36	11:31 (5)
3	09:00	09:42 (1)	08:17	09:43 (1)	07:08	06:42	05:23	04:24	04:22	05:13	06:19	07:23	07:32	08:37	09:20 (1)
15:42	26	11:51 (5)	16:45	09:59 (1)	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35	11:33 (5)
4	08:59	09:41 (1)	08:15	09:45 (1)	07:05	06:39	05:20	04:23	04:23	05:15	06:21	07:25	07:35	08:38	09:22 (1)
15:43	29	11:51 (5)	16:47	10:02 (1)	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34	11:35 (5)
5	08:59	09:40 (1)	08:13	09:50 (1)	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40	09:24 (1)
15:45	29	11:50 (5)	16:49	09:52 (1)	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33	11:36 (5)
6	08:58	09:39 (1)	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	07:39	08:42	09:25 (1)
15:46	31	11:50 (5)	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:20	15:33	11:36 (5)	
7	08:58	09:38 (1)	08:08	06:57	06:31	05:13	04:20	04:26	05:22	06:28	07:31	07:41	07:41	08:43	09:27 (1)
15:48	32	11:50 (5)	16:54	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32	11:38 (5)	
8	08:57	09:37 (1)	08:06	06:55	06:28	05:11	04:19	04:27	05:24	06:30	07:34	07:44	07:44	08:45	09:29 (1)
15:50	32	11:50 (5)	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31	11:39 (5)	
9	08:56	09:36 (1)	08:04	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	07:46	07:46	08:46	09:30 (1)
15:51	33	11:49 (5)	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31	11:39 (5)	
10	08:55	09:35 (1)	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	07:48	08:48	09:32 (1)
15:53	31	11:48 (5)	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:29	16:12	15:30	11:40 (5)	
11	08:54	09:34 (1)	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	07:51	08:49	11:37 (5)
15:55	29	11:47 (5)	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30	11:42 (5)	
12	08:53	09:33 (1)	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	07:53	08:49	11:37 (5)
15:57	24	09:57 (1)	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29	11:42 (5)	
13	08:52	09:33 (1)	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	07:55	08:51	11:16 (5)
15:59	25	09:58 (1)	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29	11:42 (5)	
14	08:51	09:33 (1)	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	07:57	08:53	11:16 (5)
16:00	25	09:58 (1)	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29	11:43 (5)	
15	08:50	09:33 (1)	07:49	06:35	06:09	04:56	04:15	04:37	05:39	06:44	07:49	08:00	08:00	08:54	11:18 (5)
16:02	27	10:00 (1)	17:13	18:18	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29	11:44 (5)	
16	08:48	09:33 (1)	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:02	08:55	11:18 (5)
16:04	27	10:00 (1)	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29	11:45 (5)	
17	08:47	09:33 (1)	07:45	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:53	08:04	08:04	08:56	11:03 (9)
16:06	28	10:01 (1)	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:30	11:45 (5)	
18	08:46	09:33 (1)	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:06	08:56	11:02 (9)
16:09	29	10:02 (1)	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:30	11:46 (5)	
19	08:44	09:33 (1)	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:09	08:57	11:02 (9)
16:11	29	10:02 (1)	17:23	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:30	11:46 (5)	
20	08:43	09:33 (1)	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:11	08:58	11:02 (9)
16:13	30	10:03 (1)	17:25	18:29	20:37	21:42	22:21	22:01	20:50	19:24	18:02	15:53	15:30	11:47 (5)	
21	08:41	09:33 (1)	07:34	06:19	05:53	04:44	04:15	04:48	05:51	06:57	08:02	08:13	08:13	08:59	11:03 (9)
16:15	30	10:03 (1)	17:27	18:31	20:39	21:44	22:21	22:01	20:47	19:21	17:59	15:51	15:30	11:48 (5)	
22	08:40	09:33 (1)	07:32	06:16	05:51	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:15	08:59	11:03 (9)
16:17	30	10:03 (1)	17:30	18:33	20:41	21:45	22:22	22:01	20:44	19:19	17:57	15:49	15:30	11:47 (5)	
23	08:38	09:34 (1)	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	08:17	08:59	11:03 (9)
16:19	30	10:04 (1)	17:32	18:35	20:44	21:47	22:22	22:01	20:42	19:16	17:54	15:48	15:30	11:48 (5)	
24	08:36	09:34 (1)	07:27	06:10	05:45	04:39	04:16	04:53	05:58	07:03	08:09	08:19	08:19	08:59	11:04 (9)
16:22	30	10:04 (1)	17:34	18:37	20:46	21:49	22:22	22:01	20:39	19:13	17:52	15:46	15:30	11:49 (5)	
25	08:34	09:34 (1)	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	08:21	09:01	11:05 (9)
16:24	30	10:04 (1)	17:37	18:40	20:48	21:51	22:22	22:01	20:36	19:10	17:49	15:45	15:30	11:49 (5)	
26	08:33	09:35 (1)	07:21	06:05	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	08:23	09:01	11:06 (9)
16:26	29	10:04 (1)	17:39	18:42	20:50	21:53	22:22	22:01	20:34	19:07	17:47	15:43	15:30	11:49 (5)	
27	08:31	09:36 (1)	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	08:25	09:01	11:08 (9)
16:28	28	10:04 (1)	17:41	18:44	20:53	21:55	22:22	22:01	20:31	19:05	17:44	15:42	15:30	11:50 (5)	
28	08:29	09:36 (1)	07:16	05:59	05:35	04:32	04:18	05:01	06:06	07:12	07:18	08:27	08:27	09:01	11:23 (5)
16:31	28	10:04 (1)	17:44	18:46	20:55	21:56	22:21	22:01	20:28	19:02	17:42	15:41	15:30	11:50 (5)	
29	08:27	09:36 (1)	07:14	06:56	05:33	04:31	04:18	05:03	06:08	07:14	07:21	08:29	08:29	09:01	11:24 (5)
16:33	27	10:03 (1)	17:47	19:48	20:57	21:58	22:21	22:01	20:26	18:59	17:39	15:39	15:30	11:50 (5)	
30	08:25	09:37 (1)	07:11	06:53	05:30	04:29	04:19	05:05	06:11	07:16	07:23	08:31	08:31	09:01	11:24 (5)
16:35	26	10:03 (1)	17:51	19:51	20:59	22:00	22:21	22:01	20:23	18:56	17:37	15:38	15:30	11:50 (5)	
31	08:23	09:39 (1)	07:09	06:51	05:28	04:28	04:17	05:07	06:13	07:18	07:25	08:33	08:33	09:01	11:25 (5)
16:38	24	10:03 (1)	17:53	19:53	21:01	22:01	22:21	22:01	20:20	18:54	17:34	15:38	15:30	11:51 (5)	
Potential sun hours	227	262	365	429	515	539	538	475	386	321	241	635	922		
Total, worst case	876	72										0.08	0.06		
Sun reduction	0.11	0.19										1.00	1.00		
Oper. time red.	1.00	1.00										1.00	1.00		
Wind dir. red.	1.00	1.00										0.08	0.06		
Total reduction	0.11	0.19										50	57		
Total, real	96	14													

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jaunzemes - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (789)
 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	09:01 15:40	08:21 16:40		07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:19 18:53	08:33 16:32
2	09:00 15:41	08:19 16:42		07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	08:35 16:30
3	09:00 15:42	08:17 16:45		07:08 17:51	06:42 20:00	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	08:37 16:27
4	08:59 15:44	08:15 16:47		07:06 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	08:38 16:25
5	08:59 15:45	08:13 16:49		07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	08:40 16:23
6	08:58 15:47	08:11 16:52		07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:14	05:20 21:24	06:26 20:04	07:29 18:40	08:42 16:21
7	08:58 15:48	08:08 16:54		06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	08:43 16:18
8	08:57 15:50	08:06 16:57		06:55 18:02	06:28 20:11	05:11 21:17	04:20 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	08:45 16:16
9	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	08:46 16:14
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 22:13	05:28 21:15	06:34 19:52	07:38 18:29	08:48 16:12
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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	08:49 16:10
12	08:53 15:57	07:57 17:06	08:27 (5)	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	08:50 16:08
13	08:52 15:59	07:54 17:08	08:24 (5)	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:21	08:51 16:06
14	08:51 16:01	07:52 17:11	08:21 (5)	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	08:53 16:04
15	08:50 16:03	07:50 17:13	08:19 (5)	06:35 18:18	06:09 20:26	04:56 21:32	04:16 22:19	04:37 22:06	05:39 21:02	06:45 19:38	07:49 18:15	08:54 16:02
16	08:48 16:05	07:47 17:16	08:16 (5)	06:33 18:20	06:07 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:55 16:00
17	08:47 16:07	07:45 17:18	08:14 (5)	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:54 18:10	08:56 15:58
18	08:46 16:09	07:42 17:20	08:14 (5)	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:57 15:56
19	08:44 16:11	07:40 17:23	08:14 (5)	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:57 15:54
20	08:43 16:13	07:37 17:25	08:14 (5)	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	07:58 18:02	08:58 15:53
21	08:41 16:15	07:35 17:27	08:15 (5)	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:51 20:47	06:57 19:22	08:03 17:59	08:59 15:51
22	08:40 16:17	07:32 17:30	08:15 (5)	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	04:50 21:55	05:54 20:44	06:59 19:19	08:05 17:57	08:59 15:49
23	08:38 16:19	07:29 17:32	08:16 (5)	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	08:07 17:54	09:00 15:31
24	08:36 16:22	07:27 17:34	08:19 (5)	06:10 18:38	05:45 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46
25	08:35 16:24	07:24 17:37	08:22 (5)	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45
26	08:33 16:26	07:22 17:39	08:26 (5)	06:05 18:42	05:40 20:50	04:36 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:47	08:23 15:44
27	08:31 16:28	07:19 17:41		06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42
28	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	07:18 16:42	08:27 15:41
29	08:27 16:33			06:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40
30	08:25 16:35			06:53 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:37
31	08:23 16:38			06:51 19:53		04:28 22:01		05:07 21:38	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
Total, worst case		214									218	207
Sun reduction		0.19									0.28	
Oper. time red.		1.00									1.00	
Wind dir. red.		1.00									1.00	
Total reduction		0.19									0.28	
Total, real		42									62	

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jaunziles - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (443)
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 15:40	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02	04:20 22:19	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:32 15:37
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	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:29 16:30	08:34 15:36
3	08:59 15:42	08:16 16:45	07:08 17:50	06:42 19:59	05:23 21:05	04:25 22:05	04:22 22:18	05:13 21:30	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:44	08:14 16:47	07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:06	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	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:23	08:39 15:34
6	08:58 15:47	08:10 16:52	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 16:20	08:41 15:33
7	08:57 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:14	04:21 22:10	04:26 22:15	05:22 21:21	06:27 20:00	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:50	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:20 22:12	04:27 22:14	05:24 21:19	06:30 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:55 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:18	04:19 22:13	04:29 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
10	08:54 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 21:14	06:34 19:52	07:38 18:28	07:48 16:12	08:47 15:30
11	08:54 15:55	07:59 17:04	06:46 18:08	06:20 20:17	05:04 21:23	04:18 22:15	04:32 22:11	05:30 21:12	06:36 19:49	07:40 18:26	07:50 16:10	08:48 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 21:09	06:38 19:47	07:42 18:23	07:52 16:08	08:50 15:30
13	08:51 15:59	07:54 17:08	06:41 18:13	06:15 20:21	05:00 21:27	04:16 22:16	04:34 22:08	05:34 21:07	06:40 19:44	07:44 18:20	07:55 16:06	08:51 15:29
14	08:50 16:01	07:51 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:17	04:36 22:07	05:36 21:04	06:42 19:41	07:46 18:18	07:57 16:04	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	04:38 22:06	05:39 21:02	06:44 19:38	07:49 18:15	07:59 16:02	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 22:04	05:41 20:59	06:46 19:35	07:51 18:12	08:01 16:00	08:54 15:29
17	08:46 16:07	07:44 17:18	06:29 18:22	06:04 20:30	04:52 21:35	04:15 22:19	04:41 22:03	05:43 20:57	06:49 19:32	07:53 18:10	08:04 15:58	08:55 15:29
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	04:43 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:34	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:53	08:57 15:30
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	04:48 21:56	05:51 20:47	06:57 19:21	08:02 17:59	08:12 15:51	08:58 15:30
22	08:39 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:50 21:55	05:53 20:44	06:59 19:18	08:04 17:57	08:15 15:49	08:59 15:31
23	08:37 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:41 21:47	04:16 22:21	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	08:36 16:22	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:16 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	08:59 15:32
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:50	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:36 21:52	04:17 22:21	04:57 21:47	06:02 20:33	07:08 19:07	07:13 16:46	08:23 15:44	09:00 15:33
27	08:30 16:28	07:19 17:41	06:02 18:44	05:38 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:28 16:31	07:16 17:43	05:59 18:46	05:35 20:54	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	09:00 15:35
29	08:27 16:33		06:56 19:48	05:33 20:57	04:31 21:57	04:18 22:20	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:40	09:00 15:36
30	08:25 16:35		06:53 19:50	05:30 20:59	04:30 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:00 15:37
31	08:23 16:38		06:50 19:53		04:28 22:01		05:07 21:37	06:13 20:20		07:25 16:34		09:00 15:38
Potential sun hours	228	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jauna iela 1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (676)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	17:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	17:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	17:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	17:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	17:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	17:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jauna iela 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (665)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jauna iela 4 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (658)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jauna iela 4A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (649)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
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15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:36	07:51 18:12	08:02 16:00	08:55 15:29
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19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
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29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
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Total, worst case												
Sun reduction												
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Total reduction												
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Table layout: For each day in each month the following matrix apply

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jauna iela 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (664)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
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	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
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	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
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	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:46	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jauna iela 6 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (663)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:46	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Jauna iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (656)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
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	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
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19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
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23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
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25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	17:49	15:45	15:32
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	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	17:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	17:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	17:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	17:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	17:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Kalngulbj - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (793)
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	09:01 15:40	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:38
2	09:00 15:41	08:19 16:43	07:11 17:48	06:45 19:57	05:26 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:37
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	05:23 21:06	04:25 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:28	08:37 15:36
4	08:59 15:44	08:15 16:47	07:06 17:53	06:40 20:02	05:21 21:08	04:24 22:07	04:23 22:18	05:16 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:35
5	08:59 15:45	08:13 16:50	07:03 17:55	06:37 20:04	05:18 21:10	04:23 22:08	04:24 22:18	05:18 21:27	06:24 20:06	07:27 18:42	07:37 16:23	08:40 15:34
6	08:58 15:47	08:11 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:22 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:14 21:15	04:21 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:19	08:43 15:32
8	08:57 15:50	08:06 16:57	06:55 18:02	06:29 20:11	05:11 21:17	04:20 22:12	04:28 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:32
9	08:56 15:52	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 18:32	07:46 16:14	08:46 15:31
10	08:55 15:53	08:01 17:02	06:49 18:07	06:23 20:15	05:07 21:21	04:18 22:14	04:30 22:13	05:28 21:15	06:34 19:53	07:38 18:29	07:48 16:12	08:48 15:31
11	08:54 15:55	07:59 17:04	06:47 18:09	06:20 20:17	05:05 21:23	04:18 22:15	04:32 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:18 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
13	08:52 15:59	07:54 17:09	06:41 18:13	06:15 20:22	05:00 21:27	04:17 22:17	04:35 22:09	05:35 21:07	06:40 19:44	07:45 18:21	07:55 16:06	08:51 15:30
14	08:51 16:01	07:52 17:11	06:38 18:16	06:12 20:24	04:58 21:29	04:16 22:18	04:36 22:08	05:37 21:05	06:43 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:03	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:16 22:19	04:38 22:06	05:39 21:02	06:45 19:39	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:05	07:47 17:16	06:33 18:20	06:07 20:28	04:54 21:34	04:16 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:55 15:29
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:55	08:57 15:30
20	08:43 16:13	07:37 17:25	06:22 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:35 17:28	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:52 20:47	06:57 19:22	08:03 18:00	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:43 21:45	04:15 22:22	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	08:38 16:20	07:29 17:32	06:13 18:35	05:48 20:44	04:41 21:47	04:16 22:22	04:52 21:53	05:56 20:42	07:02 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:35	06:10 18:38	05:46 20:46	04:39 21:49	04:16 22:22	04:54 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:47	09:00 15:32
25	08:35 16:24	07:24 17:37	06:08 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:33
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:50	04:36 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:23 15:44	09:01 15:33
27	08:31 16:29	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:33 21:56	04:18 22:21	05:01 21:44	06:07 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:19 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:36		06:54 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:39	09:01 15:37
31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:35		09:01 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Kalnieši - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (497)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:51	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:21	06:27 20:00	07:31 18:36	07:41 16:18	08:43 15:32
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11	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:48 15:30
12	08:53 15:56	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 21:09	06:38 19:46	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
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15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:01	08:53 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:34	04:48 21:39	04:15 22:20	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:08 15:54	08:57 15:29
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22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
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29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:36	08:31 15:38	09:00 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Kalnstaldoti - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (785)
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	09:01 15:40	08:21 16:40	09:01 (6) 17:46	07:14 19:55	06:48 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:19 18:54	07:28 16:32	08:37 (6) 15:37
2	09:00 15:41	08:19 16:42	09:00 (6) 17:48	07:11 19:57	06:45 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:34 (6) 15:36
3	09:00 15:42	08:17 16:45	09:01 (6) 17:51	07:08 19:50	06:42 21:00	04:25 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:34 (6) 15:35
4	08:59 15:44	08:15 16:47	09:00 (6) 17:53	07:06 19:52	06:39 21:02	04:23 22:07	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:32 (6) 15:34
5	08:59 15:45	08:13 16:49	09:01 (6) 17:55	07:03 19:54	06:37 21:04	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:32 (6) 15:34
6	08:58 15:47	08:11 16:52	09:02 (6) 17:57	07:00 19:56	06:34 21:06	04:21 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:31 (6) 15:33
7	08:58 15:48	08:08 16:54	09:03 (6) 18:00	06:57 19:58	06:31 21:05	04:20 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:18	08:31 (6) 15:32
8	08:57 15:50	08:06 16:57	09:04 (6) 18:02	06:55 19:59	06:28 21:11	04:20 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:31 (6) 15:31
9	08:56 15:51	08:04 16:59	09:05 (6) 18:04	06:52 19:58	06:26 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	08:31 (6) 15:31
10	08:55 15:53	08:01 17:01	09:08 (6) 18:06	06:49 19:59	06:23 21:21	04:18 22:14	04:30 22:13	05:28 21:15	06:34 19:53	07:38 18:29	07:48 16:12	08:31 (6) 15:30
11	08:54 15:55	07:59 17:04	09:18 (6) 18:09	06:46 19:57	06:20 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:31 (6) 15:30
12	08:53 15:57	07:57 17:06	09:18 (6) 18:11	06:44 19:59	06:17 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	08:32 (6) 15:30
13	08:52 15:59	07:54 17:09	09:18 (6) 18:13	06:41 19:57	06:15 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:21	07:55 16:06	08:32 (6) 15:29
14	08:51 16:01	07:52 17:11	09:18 (6) 18:15	06:38 19:57	06:12 21:24	04:16 22:18	04:36 22:08	05:37 21:05	06:42 19:41	07:47 18:18	07:58 16:04	08:35 (6) 15:29
15	08:50 16:03	07:50 17:13	09:18 (6) 18:18	06:35 19:57	06:09 21:26	04:16 22:19	04:38 22:06	05:39 21:02	06:45 19:38	07:49 18:15	08:00 16:02	08:35 (6) 15:29
16	08:48 16:05	07:47 17:16	09:18 (6) 18:20	06:33 19:57	06:07 21:28	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:35 (6) 15:29
17	08:47 16:07	07:45 17:18	09:18 (6) 18:22	06:30 19:57	06:04 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:35 (6) 15:29
18	08:46 16:09	07:42 17:20	09:18 (6) 18:24	06:27 19:57	06:01 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:35 (6) 15:29
19	08:44 16:11	07:40 17:23	09:18 (6) 18:24	06:24 19:57	05:59 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:55	08:35 (6) 15:29
20	08:43 16:13	07:37 17:25	09:18 (6) 18:27	06:21 19:57	05:56 21:46	04:15 22:21	04:46 22:00	05:49 20:52	06:55 19:27	08:00 18:05	08:11 15:55	08:35 (6) 15:29
21	08:41 16:15	07:35 17:27	09:18 (6) 18:29	06:19 19:57	05:53 21:46	04:15 22:22	04:48 21:59	05:51 20:50	06:57 19:24	08:03 18:02	08:13 15:53	08:35 (6) 15:29
22	08:40 16:17	07:32 17:30	09:18 (6) 18:33	06:16 19:57	05:51 21:46	04:15 22:22	04:50 21:57	05:54 20:47	06:59 19:22	08:05 17:59	08:15 15:51	08:35 (6) 15:29
23	08:38 16:19	07:29 17:32	09:18 (6) 18:35	06:13 19:57	05:48 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	08:35 (6) 15:29
24	08:36 16:22	09:11 (6) 17:34	09:11 (6) 18:36	06:10 19:57	05:45 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	08:35 (6) 15:29
25	08:35 16:24	09:09 (6) 17:37	09:09 (6) 18:36	06:07 19:57	05:43 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	08:35 (6) 15:29
26	08:33 16:26	09:07 (6) 17:39	09:07 (6) 18:36	06:05 19:57	05:40 21:51	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:23 15:44	08:35 (6) 15:29
27	08:31 16:28	09:05 (6) 17:41	09:05 (6) 18:36	06:02 19:57	05:38 21:51	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	08:35 (6) 15:29
28	08:29 16:31	09:03 (6) 17:44	09:03 (6) 18:36	05:59 19:57	05:35 21:51	04:18 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	08:35 (6) 15:29
29	08:27 16:33	09:21 (6) 17:46	09:21 (6) 18:36	06:56 19:57	05:33 21:51	04:18 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	08:35 (6) 15:29
30	08:25 16:35	09:22 (6) 17:47	09:22 (6) 18:36	06:53 19:57	05:30 21:51	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	08:35 (6) 15:29
31	08:23 16:38	09:23 (6) 17:48	09:23 (6) 18:36	06:51 19:57	05:28 22:01	04:28 22:21	05:07 21:38	06:13 20:20	07:25 16:34	07:25 16:34	08:40 (6) 15:38	08:35 (6) 15:29
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case	122	193										
Sun reduction	0.11	0.19								0.28		0.08
Oper. time red.	1.00	1.00								1.00		1.00
Wind dir. red.	1.00	1.00								1.00		1.00
Total reduction	0.11	0.19								0.28		0.08
Total, real	13	38								1		25

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Kalngerki - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (777)
 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		08:21		09:24 (7)	07:14	07:44 (8)	06:48	07:21 (9)	05:28	06:26 (5)	04:27
	15:40		16:40	36	10:00 (7)	17:46	08:06 (8)	19:55	08:39 (6)	21:01	06:47 (5)	22:03
2	09:00		08:19		09:24 (7)	07:11	07:42 (8)	06:45	07:21 (9)	05:25	06:27 (5)	04:26
	15:41		16:42	37	10:01 (7)	17:48	08:06 (8)	19:57	08:37 (6)	21:04	06:46 (5)	22:04
3	09:00		08:17		09:25 (7)	07:08	07:41 (8)	06:42	07:21 (9)	05:23	06:28 (5)	04:25
	15:42		16:45	36	10:01 (7)	17:51	08:07 (8)	20:00	08:35 (6)	21:06	06:43 (5)	22:06
4	08:59		08:15		09:24 (7)	07:06	07:40 (8)	06:39	07:22 (9)	05:21	06:31 (5)	04:23
	15:44		16:47	37	10:01 (7)	17:53	08:07 (8)	20:02	08:33 (6)	21:08	06:41 (5)	22:07
5	08:59		08:13		09:25 (7)	07:03	07:40 (8)	06:37	07:23 (9)	05:18		04:22
	15:45		16:49	36	10:01 (7)	17:55	08:08 (8)	20:04	08:30 (6)	21:10		22:08
6	08:58		08:10		09:25 (7)	07:00	07:40 (8)	06:34	07:23 (9)	05:16		04:21
	15:47		16:52	36	10:01 (7)	17:57	08:08 (8)	20:06	08:26 (6)	21:12		22:10
7	08:58		08:08		09:25 (7)	06:57	07:39 (8)	06:31	07:25 (9)	05:13		04:20
	15:48		16:54	36	10:01 (7)	18:00	08:07 (8)	20:08	07:37 (9)	21:15		22:11
8	08:57		08:06		09:26 (7)	06:55	07:39 (8)	06:28	07:29 (9)	05:11		04:20
	15:50		16:57	35	10:01 (7)	18:02	08:07 (8)	20:11	07:33 (9)	21:17		22:12
9	08:56		08:04		09:26 (7)	06:52	07:39 (8)	06:26		05:09		04:19
	15:52		16:59	34	10:00 (7)	18:04	08:06 (8)	20:13		21:19		22:13
10	08:55		08:01		09:27 (7)	06:49	07:40 (8)	06:23		05:07		04:18
	15:53		17:01	33	10:00 (7)	18:06	08:06 (8)	20:15		21:21		22:14
11	08:54		07:59		09:28 (7)	06:46	07:40 (8)	06:20		05:04		04:17
	15:55		17:04	31	09:59 (7)	18:09	08:05 (8)	20:17		21:23		22:15
12	08:53		07:57		09:28 (7)	06:44	07:25 (6)	06:17		05:02		04:17
	15:57		17:06	29	09:57 (7)	18:11	08:03 (8)	20:19		21:25		22:16
13	08:52		07:54		09:30 (7)	06:41	07:19 (6)	06:15		05:00		04:16
	15:59		17:09	27	09:57 (7)	18:13	08:01 (8)	20:22		21:27		22:17
14	08:51		07:52		09:31 (7)	06:38	07:16 (6)	06:12		04:58		04:16
	16:01		17:11	24	09:55 (7)	18:15	07:58 (8)	20:24		21:29		22:18
15	08:50		07:49		09:34 (7)	06:35	07:14 (6)	06:09	06:36 (5)	04:56		04:16
	16:03		17:13	19	09:53 (7)	18:18	07:55 (8)	20:26	06:46 (5)	21:32		22:19
16	08:48		07:47		09:36 (7)	06:33	07:12 (6)	06:07	06:33 (5)	04:54		04:15
	16:05		17:16	14	09:50 (7)	18:20	07:42 (6)	20:28	06:47 (5)	21:34		22:19
17	08:47		07:45			06:30	07:10 (6)	06:04	06:31 (5)	04:52		04:15
	16:07		17:18			18:22	07:43 (6)	20:30	06:49 (5)	21:36		22:20
18	08:46		07:42			06:27	07:09 (6)	06:01	06:28 (5)	04:50		04:15
	16:09	9	09:44 (7)	17:20		18:24	07:44 (6)	20:33	06:50 (5)	21:38		22:20
19	08:44		07:40			06:24	07:08 (6)	05:59	06:27 (5)	04:48		04:15
	16:11	15	09:47 (7)	17:23		18:27	07:44 (6)	20:35	06:51 (5)	21:40		22:21
20	08:43		07:37			06:21	07:06 (6)	05:56	06:25 (5)	04:46		04:15
	16:13	18	09:49 (7)	17:25		18:29	07:44 (6)	20:37	06:51 (5)	21:42		22:21
21	08:41		07:34			06:19	07:06 (6)	05:53	06:25 (5)	04:44		04:15
	16:15	21	09:50 (7)	17:27		18:31	07:45 (6)	20:39	06:52 (5)	21:44		22:21
22	08:40		07:32			06:16	07:05 (6)	05:51	06:24 (5)	04:42		04:15
	16:17	24	09:52 (7)	17:30		18:33	07:45 (6)	20:42	06:51 (5)	21:45		22:22
23	08:38		07:29			06:13	07:05 (6)	05:48	06:24 (5)	04:41		04:15
	16:19	26	09:53 (7)	17:32		18:35	07:45 (6)	20:44	06:52 (5)	21:47		22:22
24	08:36		07:27			06:10	06:36 (9)	05:45	06:23 (5)	04:39		04:16
	16:22	27	09:54 (7)	17:34		18:38	07:45 (6)	20:46	06:51 (5)	21:49		22:22
25	08:34		07:24			06:07	06:33 (9)	05:43	06:24 (5)	04:37		04:16
	16:24	30	09:56 (7)	17:37		18:40	07:44 (6)	20:48	06:51 (5)	21:51		22:22
26	08:33		07:22		07:50 (8)	06:05	06:31 (9)	05:40	06:23 (5)	04:36		04:17
	16:26	31	09:57 (7)	17:39	10	08:00 (8)	07:45 (6)	20:50	06:50 (5)	21:53		22:22
27	08:31		07:19		07:47 (8)	06:02	06:28 (9)	05:38	06:24 (5)	04:34		04:17
	16:28	32	09:58 (7)	17:41	15	08:02 (8)	07:44 (6)	20:53	06:50 (5)	21:55		22:22
28	08:29		07:16		07:45 (8)	05:59	06:25 (9)	05:35	06:24 (5)	04:32		04:18
	16:31	34	09:59 (7)	17:44	20	08:05 (8)	07:43 (6)	20:55	06:50 (5)	21:56		22:21
29	08:27					06:56	07:23 (9)	05:33	06:24 (5)	04:31		04:18
	16:33	35	09:59 (7)			19:49	08:42 (6)	20:57	06:48 (5)	21:58		22:21
30	08:25					06:53	07:22 (9)	05:30	06:25 (5)	04:30		04:19
	16:35	35	09:59 (7)			19:51	08:41 (6)	20:59	06:48 (5)	22:00		22:21
31	08:23					06:51	07:22 (9)			04:28		
	16:38	35	10:00 (7)			19:53	08:40 (6)			22:01		
Potential sun hours	227		262			365		429		515		539
Total, worst case		372		545		1160		670		65		
Sun reduction		0.11		0.19		0.40		0.43		0.58		
Oper. time red.		1.00		1.00		1.00		1.00		1.00		
Wind dir. red.		1.00		1.00		1.00		1.00		1.00		
Total reduction		0.11		0.19		0.40		0.43		0.58		
Total, real		41		106		467		285		38		

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Kalngerki - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (777)
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	05:09	06:15	07:19	08:01 (6)	07:28
	22:20	21:35	20:17	18:53	32	08:41 (8)
2	04:21	05:11	06:17	07:21	08:19 (8)	07:30
	22:20	21:33	20:15	18:51	23	08:42 (8)
3	04:22	05:13	06:19	07:23	08:18 (8)	07:32
	22:19	21:31	20:12	18:48	25	08:43 (8)
4	04:23	05:15	06:21	07:25	08:17 (8)	07:35
	22:18	21:29	20:09	3	07:30 (9)	18:45
5	04:24	05:17	06:23	07:22 (9)	07:27	08:16 (8)
	22:18	21:26	20:06	12	07:34 (9)	18:42
6	04:25	05:20	06:26	07:20 (9)	07:29	08:16 (8)
	22:17	21:24	20:04	29	08:22 (6)	18:40
7	04:26	05:22	06:28	07:18 (9)	07:31	08:15 (8)
	22:16	21:22	20:01	38	08:25 (6)	18:37
8	04:27	05:24	06:43 (5)	06:30	07:16 (9)	07:34
	22:15	21:20	4	06:47 (5)	19:58	45
9	04:29	05:26	06:39 (5)	06:32	07:15 (9)	07:36
	22:14	21:17	12	06:51 (5)	19:55	51
10	04:30	05:28	06:37 (5)	06:34	07:14 (9)	07:38
	22:13	21:15	16	06:53 (5)	19:52	55
11	04:32	05:30	06:36 (5)	06:36	07:14 (9)	07:40
	22:12	21:12	18	06:54 (5)	19:50	58
12	04:33	05:32	06:34 (5)	06:38	07:13 (9)	07:42
	22:10	21:10	22	06:56 (5)	19:47	59
13	04:34	05:34	06:33 (5)	06:40	07:13 (9)	07:45
	22:09	21:07	23	06:56 (5)	19:44	61
14	04:36	05:37	06:32 (5)	06:42	07:13 (9)	07:47
	22:08	21:05	25	06:57 (5)	19:41	61
15	04:38	05:39	06:32 (5)	06:45	07:14 (9)	07:49
	22:06	21:02	25	06:57 (5)	19:38	60
16	04:39	05:41	06:31 (5)	06:47	07:16 (9)	07:51
	22:05	21:00	27	06:58 (5)	19:36	58
17	04:41	05:43	06:30 (5)	06:49	07:18 (9)	07:53
	22:03	20:57	28	06:58 (5)	19:33	54
18	04:43	05:45	06:30 (5)	06:51	07:20 (9)	07:56
	22:02	20:55	28	06:58 (5)	19:30	51
19	04:44	05:47	06:30 (5)	06:53	07:23 (9)	07:58
	22:00	20:52	28	06:58 (5)	19:27	46
20	04:46	05:49	06:30 (5)	06:55	07:51 (6)	08:00
	21:59	20:50	27	06:57 (5)	19:24	41
21	04:48	05:51	06:30 (5)	06:57	07:51 (6)	08:02
	21:57	20:47	27	06:57 (5)	19:22	40
22	04:50	05:54	06:30 (5)	06:59	07:51 (6)	08:05
	21:55	20:44	26	06:56 (5)	19:19	39
23	04:52	05:56	06:30 (5)	07:01	07:51 (6)	08:07
	21:53	20:42	26	06:56 (5)	19:16	38
24	04:53	05:58	06:31 (5)	07:04	07:51 (6)	08:09
	21:52	20:39	24	06:55 (5)	19:13	37
25	04:55	06:00	06:32 (5)	07:06	07:51 (6)	07:12
	21:50	20:36	21	06:53 (5)	19:10	36
26	04:57	06:02	06:34 (5)	07:08	07:52 (6)	07:14
	21:48	20:34	18	06:52 (5)	19:07	33
27	04:59	06:04	06:36 (5)	07:10	07:53 (6)	07:16
	21:46	20:31	14	06:50 (5)	19:05	31
28	05:01	06:06	06:38 (5)	07:12	07:55 (6)	07:18
	21:44	20:28	9	06:47 (5)	19:02	28
29	05:03	06:09		07:14	07:56 (6)	07:21
	21:42	20:26		18:59	08:38 (8)	16:39
30	05:05	06:11		07:16	07:58 (6)	07:23
	21:40	20:23		18:56	08:40 (8)	16:37
31	05:07	06:13				07:25
	21:38	20:20				16:34
Potential sun hours	538	474	386	321	241	207
Total, worst case		448	1136	535	725	
Sun reduction		0.50	0.46	0.28	0.08	
Oper. time red.		1.00	1.00	1.00	1.00	
Wind dir. red.		1.00	1.00	1.00	1.00	
Total reduction		0.50	0.46	0.28	0.08	
Total, real		226	525	151	57	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Kastanas - Shadow Receptor: 1.0 x 1.0 Azimuth: 3.1° Slope: 90.0° (478)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

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

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
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30			
31			

Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valke_Vestas172 Shadow receptor: Kristali - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (484)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Kurmiš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (792)
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	09:01	08:21	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:19	07:28	08:33
	15:40	16:40	17:46	19:55	21:02	22:03	22:20	21:35	20:18	18:54	16:32	15:38
2	09:00	08:19	07:11	06:45	05:26	04:26	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:43	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:37
3	09:00	08:17	07:08	06:42	05:23	04:25	04:22	05:14	06:19	07:23	07:32	08:37
	15:42	16:45	17:51	20:00	21:06	22:06	22:19	21:31	20:12	18:48	16:28	15:36
4	08:59	08:15	07:06	06:40	05:21	04:24	04:23	05:16	06:21	07:25	07:35	08:38
	15:44	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:35
5	08:59	08:13	07:03	06:37	05:18	04:23	04:24	05:18	06:24	07:27	07:37	08:40
	15:45	16:50	17:55	20:04	21:10	22:08	22:18	21:27	20:07	18:43	16:23	15:34
6	08:58	08:11	07:00	06:34	05:16	04:22	04:25	05:20	06:26	07:29	07:39	08:42
	15:47	16:52	17:58	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:21	15:33
7	08:58	08:08	06:58	06:31	05:14	04:21	04:26	05:22	06:28	07:32	07:42	08:43
	15:48	16:54	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:19	15:32
8	08:57	08:06	06:55	06:29	05:11	04:20	04:28	05:24	06:30	07:34	07:44	08:45
	15:50	16:57	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:32
9	08:56	08:04	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	07:46	08:46
	15:52	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:32	16:14	15:31
10	08:55	08:01	06:49	06:23	05:07	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:02	18:07	20:15	21:21	22:14	22:13	21:15	19:53	18:29	16:12	15:31
11	08:54	07:59	06:47	06:20	05:05	04:18	04:32	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:18	05:02	04:17	04:33	05:32	06:38	07:43	07:53	08:50
	15:57	17:06	18:11	20:20	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:30
13	08:52	07:54	06:41	06:15	05:00	04:17	04:35	05:35	06:40	07:45	07:55	08:51
	15:59	17:09	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:21	16:06	15:30
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:37	06:43	07:47	07:58	08:53
	16:01	17:11	18:16	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:50	06:35	06:09	04:56	04:16	04:38	05:39	06:45	07:49	08:00	08:54
	16:03	17:13	18:18	20:26	21:32	22:19	22:06	21:02	19:39	18:15	16:02	15:29
16	08:48	07:47	06:33	06:07	04:54	04:16	04:39	05:41	06:47	07:51	08:02	08:55
	16:05	17:16	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:13	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:54	08:04	08:56
	16:07	17:18	18:22	20:31	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:43	05:45	06:51	07:56	08:06	08:56
	16:09	17:21	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:57	15:29
19	08:44	07:40	06:24	05:59	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:11	17:23	18:27	20:35	21:40	22:21	22:00	20:52	19:27	18:05	15:55	15:30
20	08:43	07:37	06:22	05:56	04:46	04:15	04:46	05:50	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:30
21	08:41	07:35	06:19	05:53	04:44	04:15	04:48	05:52	06:57	08:03	08:13	08:59
	16:15	17:28	18:31	20:39	21:44	22:21	21:57	20:47	19:22	18:00	15:51	15:30
22	08:40	07:32	06:16	05:51	04:43	04:15	04:50	05:54	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:42	21:45	22:22	21:55	20:44	19:19	17:57	15:50	15:31
23	08:38	07:29	06:13	05:48	04:41	04:16	04:52	05:56	07:02	08:07	08:17	09:00
	16:20	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:46	04:39	04:16	04:54	05:58	07:04	08:09	08:19	09:00
	16:22	17:35	18:38	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:47	15:32
25	08:35	07:24	06:08	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:33
26	08:33	07:22	06:05	05:41	04:36	04:17	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:08	16:47	15:44	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:29	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:33	04:18	05:01	06:07	07:12	07:19	08:27	09:01
	16:31	17:44	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
29	08:27		06:56	05:33	04:31	04:19	05:03	06:09	07:14	07:21	08:29	09:01
	16:33		19:49	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:40	15:36
30	08:25		06:54	05:30	04:30	04:19	05:05	06:11	07:16	07:23	08:31	09:01
	16:36		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:39	15:37
31	08:23		06:51		04:28		05:07	06:13		07:25		09:01
	16:38		19:53		22:01		21:38	20:20		16:35		15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Karla Skalbes iela 10 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (604)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:19	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Karla Skalbes iela 11 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (642)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:19	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Karla Skalbes iela 15 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (606)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Karla Skalbes iela 17 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (611)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Karla Skalbes iela 19 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (631) 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lati - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (492)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:14 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	07:16 20:23	07:23 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valke_Vestas172 Shadow receptor: Latini - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (475)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

		January	February	March	April	May	June	July	August	September	October	November	December
1	09:00	14:28 (4)	08:21	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	07:27	08:33
	15:39	23 14:51 (4)	16:40	17:46	19:55	21:01	22:02	22:20	21:35	20:17	18:53	16:32	21 15:56 (2)
2	09:00	14:28 (4)	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:20	07:30	08:35
	15:40	23 14:51 (4)	16:42	17:48	19:57	21:03	22:04	22:19	21:33	20:14	18:50	16:29	18 15:54 (2)
3	09:00	14:29 (4)	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:36
	15:42	23 14:52 (4)	16:44	17:50	19:59	21:06	22:05	22:19	21:31	20:12	18:48	16:27	15 15:51 (2)
4	08:59	14:30 (4)	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	23 14:53 (4)	16:47	17:53	20:01	21:08	22:07	22:18	21:28	20:09	18:45	16:25	11 15:49 (2)
5	08:59	14:30 (4)	08:12	07:03	06:36	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	23 14:53 (4)	16:49	2 16:14 (2)	17:55	20:04	21:10	22:08	22:17	21:26	20:06	18:42	7 15:46 (2)
6	08:58	14:30 (4)	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:41
	15:46	23 14:53 (4)	16:52	7 16:16 (2)	17:57	20:06	21:12	22:09	22:16	21:24	20:03	18:39	16:20
7	08:57	14:31 (4)	08:08	16:08 (2)	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	1 15:44 (2)
	15:48	23 14:54 (4)	16:54	11 16:19 (2)	17:59	20:08	21:14	22:11	22:16	21:22	20:01	18:37	07:41
8	08:57	14:31 (4)	08:06	16:07 (2)	06:54	06:28	05:11	04:19	04:27	05:23	06:29	07:33	07:43
	15:49	23 14:54 (4)	16:56	15 16:22 (2)	18:02	20:10	21:16	22:12	22:15	21:19	19:58	18:34	16:18
9	08:56	14:32 (4)	08:03	16:06 (2)	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46
	15:51	23 14:55 (4)	16:59	19 16:25 (2)	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:16
10	08:55	14:32 (4)	08:01	16:05 (2)	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48
	15:53	24 14:56 (4)	17:01	22 16:27 (2)	18:06	20:15	21:21	22:14	22:12	21:14	19:52	18:28	16:12
11	08:54	14:32 (4)	07:59	16:05 (2)	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:50
	15:55	23 14:55 (4)	17:03	25 16:30 (2)	18:08	20:17	21:23	22:15	22:11	21:12	19:49	18:26	16:10
12	08:53	14:33 (4)	07:56	16:04 (2)	06:43	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53
	15:57	23 14:56 (4)	17:06	26 16:30 (2)	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07
13	08:52	14:33 (4)	07:54	16:04 (2)	06:40	06:14	05:00	04:16	04:36	05:40	06:46	07:55	08:05
	15:58	22 14:55 (4)	17:08	27 16:31 (2)	18:13	20:21	21:27	22:17	22:09	21:07	19:44	18:20	16:05
14	08:51	14:35 (4)	07:52	16:04 (2)	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57
	16:00	21 14:56 (4)	17:11	27 16:31 (2)	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03
15	08:49	14:35 (4)	07:49	16:04 (2)	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	07:59
	16:02	21 14:56 (4)	17:13	26 16:30 (2)	18:17	20:26	21:31	22:18	22:06	21:02	19:38	18:15	16:02
16	08:48	14:36 (4)	07:47	16:04 (2)	06:32	06:06	04:53	04:15	04:39	05:40	06:46	07:51	08:02
	16:04	20 14:56 (4)	17:15	27 16:31 (2)	18:20	20:28	21:33	22:19	22:05	21:00	19:35	18:12	16:00
17	08:47	14:37 (4)	07:44	16:04 (2)	06:29	06:04	04:51	04:15	04:40	05:43	06:48	07:53	08:04
	16:06	19 14:56 (4)	17:18	26 16:30 (2)	18:22	20:30	21:35	22:20	22:03	20:57	19:33	18:10	15:58
18	08:45	14:38 (4)	07:42	16:05 (2)	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:55	08:06
	16:08	17 14:55 (4)	17:20	25 16:30 (2)	18:24	20:32	21:37	22:20	22:02	20:55	19:30	18:07	3 16:50 (2)
19	08:44	14:39 (4)	07:39	16:06 (2)	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:07
	16:10	15 14:51 (4)	17:22	23 16:29 (2)	18:25	20:33	21:39	22:21	22:00	20:52	19:27	18:04	12 16:54 (2)
20	08:42	14:41 (4)	07:37	16:06 (2)	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	16:39 (2)
	16:13	13 14:54 (4)	17:25	22 16:28 (2)	18:28	20:37	21:41	22:21	21:58	20:49	19:24	18:02	17 16:56 (2)
21	08:41	14:43 (4)	07:34	16:07 (2)	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	16:38 (2)
	16:15	10 14:53 (4)	17:27	19 16:26 (2)	18:31	20:39	21:43	22:21	21:57	20:47	19:21	17:59	20 16:58 (2)
22	08:39	14:47 (4)	07:32	16:10 (2)	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:04	16:36 (2)
	16:17	2 14:49 (4)	17:29	15 16:25 (2)	18:33	20:41	21:45	22:21	21:55	20:44	19:18	17:57	22 16:58 (2)
23	08:38		07:29	16:12 (2)	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	16:36 (2)
	16:19		17:32	10 16:22 (2)	18:35	20:43	21:47	22:22	21:53	20:41	19:16	17:54	24 17:00 (2)
24	08:36		07:26	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	16:34 (2)	
	16:21		17:34	18:37	20:46	21:49	22:22	21:51	20:39	19:13	17:51	26 17:00 (2)	
25	08:34		07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:05	07:11	15:34 (2)	
	16:24		17:36	18:39	20:48	21:51	22:22	21:49	20:36	19:10	16:49	27 16:01 (2)	
26	08:32		07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	15:34 (2)	
	16:26		17:39	18:42	20:50	21:53	22:21	21:47	20:33	19:07	16:46	26 16:00 (2)	
27	08:31		07:19	06:02	05:37	04:34	04:17	04:59	06:04	07:10	07:16	15:34 (2)	
	16:28		17:41	18:44	20:52	21:54	22:21	21:45	20:31	19:04	16:44	27 16:01 (2)	
28	08:29		07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	15:33 (2)	
	16:30		17:43	18:46	20:55	21:56	22:21	21:43	20:28	19:02	16:41	27 16:00 (2)	
29	08:27			06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:20	15:34 (2)	
	16:33			19:48	20:57	21:58	22:21	21:41	20:25	18:59	16:39	27 16:01 (2)	
30	08:25			06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	15:34 (2)	
	16:35			19:50	20:59	21:59	22:20	21:39	20:23	18:56	16:37	26 16:00 (2)	
31	08:23			06:50		04:28		05:07	06:13		07:25	15:35 (2)	
	16:37			19:53		22:01		21:37	20:20		16:34	24 15:59 (2)	
Potential sun hours	227		262	365	429	515	539	538	474	386	321	241	207
Total, worst case	437		374								308	256	655
Sun reduction	0.11		0.19								0.28	0.08	0.06
Oper. time red.	1.00		1.00								1.00	1.00	1.00
Wind dir. red.	1.00		1.00								1.00	1.00	1.00
Total reduction	0.11		0.19								0.28	0.08	0.06
Total, real	48		73								87	20	40

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lauku iela 2 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (541)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Ledini - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (580)
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 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 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 15:43	08:15 16:47	07:05 17:53	06:39 20:02	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:47 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:49	07:40 18:26	07:50 16:09	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:52 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:55 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:01	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	08:04 15:58	08:55 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:47 21:40	04:14 22:21	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	08:43 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:14 22:21	04:46 21:59	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:39 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:18	08:05 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:40	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:25	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lejas Gerki - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (783)
 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	08:21	07:14							06:48			07:16 (8)	05:28		06:07 (6)	04:27	05:16 (5)
	15:40	16:40	17:46							19:55	44		09:01 (7)	21:01	24	06:31 (6)	22:03	06:31 (6)
2	09:00	08:19	07:11							06:45			07:13 (8)	05:25		06:06 (6)	04:26	05:16 (5)
	15:41	16:42	17:48							19:57	42		08:57 (7)	21:04	27	06:33 (6)	22:04	06:30 (6)
3	09:00	08:17	07:08							06:42			07:11 (8)	05:23		06:04 (6)	04:25	05:18 (5)
	15:42	16:45	17:51							20:00	38		08:53 (7)	21:06	29	06:33 (6)	22:06	06:31 (6)
4	08:59	08:15	07:06							06:39			07:11 (8)	05:21		06:03 (6)	04:23	05:18 (5)
	15:44	16:47	17:53							20:02	25		07:36 (8)	21:08	31	06:34 (6)	22:07	06:30 (6)
5	08:59	08:13	07:03							06:37			07:09 (8)	05:18		06:02 (6)	04:22	05:18 (5)
	15:45	16:50	17:55							20:04	27		07:36 (8)	21:10	33	06:35 (6)	22:08	06:29 (6)
6	08:58	08:10	07:00						07:48 (7)	06:34			07:08 (8)	05:16		06:02 (6)	04:21	05:18 (5)
	15:47	16:52	17:57	14					08:02 (7)	20:06	28		07:36 (8)	21:12	34	06:36 (6)	22:10	06:28 (6)
7	08:57	08:08	06:57						07:44 (7)	06:31			07:07 (8)	05:13		06:01 (6)	04:21	05:18 (5)
	15:48	16:54	18:00	22					08:06 (7)	20:08	29		07:36 (8)	21:15	35	06:36 (6)	22:11	06:27 (6)
8	08:57	08:06	06:55						07:41 (7)	06:28			07:08 (8)	05:11		06:01 (6)	04:20	05:19 (5)
	15:50	16:57	18:02	27					08:08 (7)	20:11	28		07:36 (8)	21:17	36	06:37 (6)	22:12	06:27 (6)
9	08:56	08:04	06:52						07:38 (7)	06:26			07:07 (8)	05:09		06:00 (6)	04:19	05:19 (5)
	15:52	16:59	18:04	31					08:09 (7)	20:13	29		07:36 (8)	21:19	37	06:37 (6)	22:13	06:26 (6)
10	08:55	08:01	06:49						07:37 (7)	06:23			07:06 (8)	05:07		05:59 (6)	04:18	05:20 (5)
	15:53	17:01	18:06	35					08:12 (7)	20:15	29		07:35 (8)	21:21	38	06:37 (6)	22:14	06:25 (6)
11	08:54	07:59	06:46						07:36 (7)	06:20			07:07 (8)	05:04		06:00 (6)	04:18	05:20 (5)
	15:55	17:04	18:09	37					08:13 (7)	20:17	28		07:35 (8)	21:23	38	06:38 (6)	22:15	06:23 (6)
12	08:53	07:57	06:44						07:34 (7)	06:17			07:07 (8)	05:02		05:59 (6)	04:17	05:21 (5)
	15:57	17:06	18:11	39					08:13 (7)	20:19	27		07:34 (8)	21:25	39	06:38 (6)	22:16	05:40 (5)
13	08:52	07:54	06:41						07:33 (7)	06:15			07:07 (8)	05:00		05:59 (6)	04:16	05:21 (5)
	15:59	17:09	18:13	41					08:14 (7)	20:22	26		07:33 (8)	21:27	39	06:38 (6)	22:17	05:39 (5)
14	08:51	07:52	06:38						07:31 (7)	06:12			07:08 (8)	04:58		05:59 (6)	04:16	05:22 (5)
	16:01	17:11	18:15	43					08:14 (7)	20:24	24		07:32 (8)	21:29	39	06:38 (6)	22:18	05:39 (5)
15	08:50	07:49	06:35						07:31 (7)	06:09			07:09 (8)	04:56		05:28 (5)	04:16	05:22 (5)
	16:03	17:13	18:18	44					08:15 (7)	20:26	21		07:30 (8)	21:31	43	06:37 (6)	22:19	05:40 (5)
16	08:48	07:47	06:33						07:30 (7)	06:07			07:09 (8)	04:54		05:26 (5)	04:15	05:23 (5)
	16:05	17:16	18:20	45					08:15 (7)	20:28	19		07:28 (8)	21:34	46	06:37 (6)	22:19	05:40 (5)
17	08:47	07:45	06:30						07:29 (7)	06:04			07:12 (8)	04:52		05:24 (5)	04:15	05:23 (5)
	16:07	17:18	18:22	46					08:15 (7)	20:30	14		07:26 (8)	21:36	49	06:37 (6)	22:20	05:40 (5)
18	08:46	07:42	06:27						07:29 (7)	06:01			07:14 (8)	04:50		05:23 (5)	04:15	05:23 (5)
	16:09	17:20	18:24	46					08:15 (7)	20:33	9		07:23 (8)	21:38	52	06:37 (6)	22:20	05:40 (5)
19	08:44	07:40	06:24						07:28 (7)	05:59				04:48		05:21 (5)	04:15	05:24 (5)
	16:11	17:23	18:27	47					08:15 (7)	20:35				21:40	54	06:37 (6)	22:21	05:40 (5)
20	08:43	07:37	06:21						07:27 (7)	05:56			06:23 (9)	04:46		05:19 (5)	04:15	05:24 (5)
	16:13	17:25	18:29	47					08:14 (7)	20:37	3		06:26 (9)	21:42	55	06:36 (6)	22:21	05:40 (5)
21	08:41	07:34	06:19						07:28 (7)	05:53			06:21 (9)	04:44		05:18 (5)	04:15	05:24 (5)
	16:15	17:27	18:31	47					08:15 (7)	20:39	8		06:29 (9)	21:43	57	06:37 (6)	22:21	05:40 (5)
22	08:40	07:32	06:16						07:28 (7)	05:51			06:18 (9)	04:42		05:16 (5)	04:15	05:24 (5)
	16:17	17:30	18:33	46					08:14 (7)	20:42	12		06:30 (9)	21:45	58	06:36 (6)	22:22	05:40 (5)
23	08:38	07:29	06:13						07:27 (7)	05:48			06:16 (9)	04:41		05:16 (5)	04:16	05:25 (5)
	16:19	17:32	18:35	46					08:13 (7)	20:44	15		06:31 (9)	21:47	58	06:36 (6)	22:22	05:41 (5)
24	08:36	07:27	06:10						07:27 (7)	05:45			06:13 (9)	04:39		05:15 (5)	04:16	05:25 (5)
	16:22	17:34	18:38	45					08:12 (7)	20:46	18		06:31 (9)	21:49	58	06:35 (6)	22:22	05:41 (5)
25	08:34	07:24	06:07						07:27 (7)	05:43			06:11 (9)	04:37		05:16 (5)	04:16	05:24 (5)
	16:24	17:37	18:40	44					08:11 (7)	20:48	21		06:32 (9)	21:51	57	06:35 (6)	22:22	05:41 (5)
26	08:33	07:22	06:05						07:28 (7)	05:40			06:09 (9)	04:36		05:15 (5)	04:17	05:25 (5)
	16:26	17:39	18:42	43					08:11 (7)	20:50	22		06:31 (9)	21:53	56	06:34 (6)	22:22	05:42 (5)
27	08:31	07:19	06:02						07:28 (7)	05:38			06:09 (9)	04:34		05:15 (5)	04:17	05:24 (5)
	16:28	17:41	18:44	42					08:10 (7)	20:53	23		06:32 (9)	21:54	56	06:34 (6)	22:21	05:42 (5)
28	08:29	07:16	05:59						07:29 (7)	05:35			06:09 (9)	04:33		05:16 (5)	04:18	05:25 (5)
	16:31	17:44	18:46	39					08:08 (7)	20:55	23		06:32 (9)	21:56	54	06:34 (6)	22:21	05:43 (5)
29	08:27		06:56						08:29 (7)	05:33			06:09 (9)	04:31		05:16 (5)	04:19	05:25 (5)
	16:33		19:49	37					09:06 (7)	20:57	22		06:31 (9)	21:58	52	06:33 (6)	22:21	05:43 (5)
30	08:25		06:53						08:30 (7)	05:30			06:09 (9)	04:30		05:17 (5)	04:19	05:24 (5)
	16:35		19:51	34					09:04 (7)	20:59	22		06:31 (9)	22:00	52	06:33 (6)	22:21	05:43 (5)
31	08:23		06:51						07:19 (8)					04:28		05:16 (5)		
	16:38		19:53	42					09:03 (7)					22:01	51	06:32 (6)		
Potential sun hours	227	262	365							429				515			539	
Total, worst case							1029				676			1387			745	
Sun reduction							0.40				0.43			0.58			0.56	
Oper. time red.							1.00				1.00			1.00			1.00	
Wind dir. red.							1.00				1.00			1.00			1.00	
Total reduction							0.40				0.43			0.58			0.56	
Total, real							415				288			807			417	

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lejas Gerki - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (783)
 Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 0.80 1.82 4.75 6.09 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	05:25 (5)	05:09	06:10 (6)	06:15	07:06 (8)	07:19	08:13 (7)	07:28	08:33	
	22:20	19 05:44 (5)	21:35	38 06:48 (6)	20:17	28 07:34 (8)	18:53	40 08:53 (7)	16:32	15:37	
2	04:21	05:25 (5)	05:11	06:10 (6)	06:17	07:05 (8)	07:21	08:13 (7)	07:30	08:35	
	22:20	25 06:28 (6)	21:33	38 06:48 (6)	20:15	29 07:34 (8)	18:51	38 08:51 (7)	16:30	15:36	
3	04:22	05:25 (5)	05:13	06:09 (6)	06:19	07:05 (8)	07:23	08:14 (7)	07:32	08:37	
	22:19	30 06:30 (6)	21:31	38 06:47 (6)	20:12	29 07:34 (8)	18:48	35 08:49 (7)	16:27	15:35	
4	04:23	05:25 (5)	05:15	06:10 (6)	06:21	07:05 (8)	07:25	08:16 (7)	07:35	08:38	
	22:18	32 06:36 (6)	21:29	36 06:46 (6)	20:09	28 07:33 (8)	18:45	32 08:48 (7)	16:25	15:34	
5	04:24	05:25 (5)	05:18	06:10 (6)	06:23	07:04 (8)	07:27	08:17 (7)	07:37	08:40	
	22:17	35 06:33 (6)	21:26	36 06:46 (6)	20:06	29 07:33 (8)	18:42	29 08:46 (7)	16:23	15:34	
6	04:25	05:25 (5)	05:20	06:10 (6)	06:26	07:04 (8)	07:29	08:19 (7)	07:39	08:42	
	22:17	37 06:34 (6)	21:24	36 06:46 (6)	20:04	28 07:32 (8)	18:40	24 08:43 (7)	16:21	15:33	
7	04:26	05:25 (5)	05:22	06:11 (6)	06:28	07:05 (8)	07:31	08:21 (7)	07:41	08:43	
	22:16	40 06:35 (6)	21:22	34 06:45 (6)	20:01	26 07:31 (8)	18:37	19 08:40 (7)	16:18	15:32	
8	04:28	05:25 (5)	05:24	06:12 (6)	06:30	07:05 (8)	07:34	08:27 (7)	07:44	08:45	
	22:15	42 06:36 (6)	21:19	32 06:44 (6)	19:58	25 07:30 (8)	18:34	8 08:35 (7)	16:16	15:31	
9	04:29	05:24 (5)	05:26	06:13 (6)	06:32	07:05 (8)	07:36		07:46	08:46	
	22:14	44 06:37 (6)	21:17	30 06:43 (6)	19:55	39 08:47 (7)	18:31		16:14	15:31	
10	04:30	05:24 (5)	05:28	06:13 (6)	06:34	07:06 (8)	07:38		07:48	08:47	
	22:13	46 06:38 (6)	21:15	29 06:42 (6)	19:52	43 08:50 (7)	18:29		16:12	15:30	
11	04:32	05:25 (5)	05:30	06:15 (6)	06:36	07:08 (8)	07:40		07:51	08:49	
	22:12	47 06:39 (6)	21:12	26 06:41 (6)	19:50	44 08:53 (7)	18:26		16:10	15:30	
12	04:33	05:24 (5)	05:32	06:16 (6)	06:38	07:10 (8)	07:42		07:53	08:50	
	22:10	50 06:40 (6)	21:10	23 06:39 (9)	19:47	43 08:54 (7)	18:23		16:08	15:30	
13	04:34	05:24 (5)	05:34	06:17 (9)	06:40	08:21 (7)	07:45		07:55	08:51	
	22:09	51 06:40 (6)	21:07	22 06:39 (9)	19:44	35 08:56 (7)	18:21		16:06	15:29	
14	04:36	05:25 (5)	05:37	06:17 (9)	06:42	08:20 (7)	07:47		07:57	08:52	
	22:08	53 06:42 (6)	21:05	22 06:39 (9)	19:41	37 08:57 (7)	18:18		16:04	15:29	
15	04:38	05:24 (5)	05:39	06:17 (9)	06:45	08:18 (7)	07:49		08:00	08:54	
	22:06	54 06:42 (6)	21:02	22 06:39 (9)	19:38	39 08:57 (7)	18:15		16:02	15:29	
16	04:39	05:25 (5)	05:41	06:17 (9)	06:47	08:17 (7)	07:51		08:02	08:55	
	22:05	54 06:43 (6)	21:00	22 06:39 (9)	19:36	41 08:58 (7)	18:13		16:00	15:29	
17	04:41	05:25 (5)	05:43	06:17 (9)	06:49	08:16 (7)	07:53		08:04	08:55	
	22:03	55 06:43 (6)	20:57	22 06:39 (9)	19:33	42 08:58 (7)	18:10		15:58	15:29	
18	04:43	05:25 (5)	05:45	06:18 (9)	06:51	08:15 (7)	07:56		08:06	08:56	
	22:02	58 06:45 (6)	20:55	20 06:38 (9)	19:30	44 08:59 (7)	18:07		15:56	15:29	
19	04:44	05:25 (5)	05:47	06:20 (9)	06:53	08:15 (7)	07:58		08:09	08:57	
	22:00	58 06:45 (6)	20:52	17 06:37 (9)	19:27	45 09:00 (7)	18:05		15:55	15:29	
20	04:46	05:26 (5)	05:49	06:22 (9)	06:55	08:14 (7)	08:00		08:11	08:58	
	21:59	58 06:46 (6)	20:50	14 06:36 (9)	19:24	46 09:00 (7)	18:02		15:53	15:30	
21	04:48	05:25 (5)	05:52	06:24 (9)	06:57	08:13 (7)	08:02		08:13	08:59	
	21:57	58 06:45 (6)	20:47	11 06:35 (9)	19:22	47 09:00 (7)	17:59		15:51	15:30	
22	04:50	05:27 (5)	05:54	06:26 (9)	06:59	08:13 (7)	08:05		08:15	08:59	
	21:55	58 06:46 (6)	20:44	7 06:33 (9)	19:19	46 08:59 (7)	17:57		15:50	15:31	
23	04:52	05:29 (5)	05:56	06:28 (9)	07:01	08:12 (7)	08:07		08:17	09:00	
	21:53	57 06:47 (6)	20:42	3 06:31 (9)	19:16	47 08:59 (7)	17:54		15:48	15:31	
24	04:53	05:30 (5)	05:58		07:04	08:12 (7)	08:09		08:19	09:00	
	21:51	55 06:47 (6)	20:39		19:13	47 08:59 (7)	17:52		15:46	15:32	
25	04:55	05:32 (5)	06:00		07:17 (8)	07:06	08:11 (7)	07:12	08:21	09:00	
	21:50	52 06:47 (6)	20:36	10 07:27 (8)	19:10	47 08:58 (7)	16:49		15:45	15:32	
26	04:57	05:34 (5)	06:02		07:14 (8)	07:08	08:11 (7)	07:14	08:23	09:01	
	21:48	51 06:48 (6)	20:34	15 07:29 (8)	19:07	46 08:57 (7)	16:47		15:44	15:33	
27	04:59	05:36 (5)	06:04		07:12 (8)	07:10	08:11 (7)	07:16	08:25	09:01	
	21:46	48 06:48 (6)	20:31	19 07:31 (8)	19:05	45 08:56 (7)	16:44		15:42	15:34	
28	05:01	05:37 (5)	06:06		07:10 (8)	07:12	08:12 (7)	07:18	08:27	09:01	
	21:44	45 06:47 (6)	20:28	22 07:32 (8)	19:02	44 08:56 (7)	16:42		15:41	15:35	
29	05:03	05:39 (5)	06:09		07:09 (8)	07:14	08:12 (7)	07:21	08:29	09:01	
	21:42	42 06:48 (6)	20:26	24 07:33 (8)	18:59	43 08:55 (7)	16:39		15:40	15:36	
30	05:05	06:09 (6)	06:11		07:08 (8)	07:16	08:12 (7)	07:23	08:31	09:01	
	21:40	39 06:48 (6)	20:23	25 07:33 (8)	18:56	42 08:54 (7)	16:37		15:39	15:37	
31	05:07	06:09 (6)	06:13		07:07 (8)		07:25			09:01	
	21:37	39 06:48 (6)	20:20	27 07:34 (8)			16:34			15:38	
Potential sun hours	538		474		386		321		241	207	
Total, worst case	1432		720		1174		225				
Sun reduction	0.47		0.50		0.46		0.28				
Oper. time red.	1.00		1.00		1.00		1.00				
Wind dir. red.	1.00		1.00		1.00		1.00				
Total reduction	0.47		0.50		0.46		0.28				
Total, real	673		363		542		64				

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lejasstaldoti - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (772)
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	09:01 15:40	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:02	04:27 22:03	04:20 22:20	05:09 21:36	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:37
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	05:23 21:06	04:25 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
4	08:59 15:44	08:15 16:47	07:06 17:53	06:40 20:02	05:21 21:08	04:23 22:07	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:50	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:34
6	08:58 15:47	08:11 16:52	07:00 17:57	06:34 20:06	05:16 21:13	04:21 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:18	08:43 15:32
8	08:57 15:50	08:06 16:57	06:55 18:02	06:28 20:11	05:11 21:17	04:20 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	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
10	08:55 15:53	08:02 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 19:53	07:38 18:29	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 22:11	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:30
13	08:52 15:59	07:54 17:09	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:08	06:40 19:44	07:45 18:21	07:55 16:06	08:52 15:29
14	08:51 16:01	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:37 21:05	06:42 19:41	07:47 18:18	07:58 16:04	08:53 15:29
15	08:50 16:03	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:16 22:19	04:38 22:07	05:39 21:03	06:45 19:39	07:49 18:15	08:00 16:02	08:54 15:29
16	08:49 16:05	07:47 17:16	06:33 18:20	06:07 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:55 15:29
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:21	04:43 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:55	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:35 17:27	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:52 20:47	06:57 19:22	08:03 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	04:50 21:55	05:54 20:44	06:59 19:19	08:05 17:57	08:15 15:50	08:59 15:30
23	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	07:02 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:34	06:10 18:38	05:45 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:01 15:32
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:50	04:36 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:23 15:44	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	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	07:19 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:35		06:53 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Liepas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (459)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:10 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:20 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:51	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:21	06:27 20:00	07:31 18:36	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:14	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:08 21:18	04:18 22:13	04:28 22:13	05:25 21:17	06:31 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:48 15:30
12	08:53 15:56	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 21:09	06:38 19:46	07:42 18:23	07:52 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:40 18:13	06:14 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 16:05	08:51 15:29
14	08:50 16:00	07:51 17:10	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:17	04:36 22:07	05:36 21:04	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:55 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:01	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:19	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:04	05:40 20:59	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:01	05:45 20:54	06:50 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:34	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:57 15:29
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	04:47 21:56	05:51 20:47	06:57 19:21	08:02 17:59	08:12 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:15	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:21	04:53 21:51	05:57 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:42 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:30 16:28	07:18 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:01	07:18 16:41	08:27 15:41	09:00 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:00 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:22	07:16 18:56	07:23 16:36	08:31 15:38	09:00 15:36
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Liepkalni - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (796)
 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	07:14 17:46	09:36 (7) 11:07 (7)	06:48 19:55	10:37 (7) 11:39 (7)	05:28 21:01	07:11 (8) 07:44 (8)	04:27 22:03	05:04 (1) 06:11 (9)
2	09:00 15:41	08:19 16:42	07:11 17:48	09:35 (7) 11:07 (7)	06:45 19:57	07:33 (8) 11:36 (7)	05:25 21:04	05:55 (9) 07:42 (8)	04:26 22:04	05:04 (1) 06:10 (9)
3	09:00 15:42	08:17 16:45	07:08 17:51	09:34 (7) 11:07 (7)	06:42 20:00	07:26 (8) 11:32 (7)	05:23 21:06	05:52 (9) 07:40 (8)	04:25 22:06	05:04 (1) 06:10 (9)
4	08:59 15:44	08:15 16:47	07:05 17:53	09:33 (7) 11:07 (7)	06:39 20:02	07:23 (8) 11:29 (7)	05:21 21:08	05:51 (9) 07:38 (8)	04:23 22:07	05:05 (1) 06:10 (9)
5	08:59 15:45	08:13 16:49	07:03 17:55	09:33 (7) 11:08 (7)	06:37 20:04	07:20 (8) 11:24 (7)	05:18 21:10	05:49 (9) 07:36 (8)	04:22 22:08	05:05 (1) 06:09 (9)
6	08:58 15:47	08:10 16:52	07:00 17:57	09:32 (7) 11:08 (7)	06:34 20:06	07:18 (8) 11:18 (7)	05:16 21:12	05:48 (9) 07:33 (8)	04:21 22:10	05:05 (1) 06:07 (9)
7	08:57 15:48	08:08 16:54	10:14 (7) 18:00	06:57 11:08 (7)	09:32 (7) 20:08	07:16 (8) 11:10 (7)	05:13 21:14	05:48 (9) 06:15 (9)	04:20 22:11	05:05 (1) 06:05 (9)
8	08:57 15:50	08:06 16:57	10:09 (7) 18:02	06:55 11:07 (7)	09:31 (7) 20:11	06:55 (3) 07:53 (8)	05:11 21:17	05:47 (9) 06:15 (9)	04:20 22:12	05:06 (1) 05:28 (1)
9	08:56 15:52	08:04 16:59	10:05 (7) 18:04	06:52 11:07 (7)	09:30 (7) 20:13	06:52 (3) 07:53 (8)	05:09 21:19	05:45 (9) 06:15 (9)	04:19 22:13	05:06 (1) 05:28 (1)
10	08:55 15:53	08:01 17:01	10:02 (7) 18:06	06:49 11:08 (7)	09:31 (7) 20:15	06:49 (3) 07:54 (8)	05:07 21:21	05:45 (9) 06:15 (9)	04:18 22:14	05:06 (1) 05:28 (1)
11	08:54 15:55	07:59 17:04	09:59 (7) 18:09	06:46 11:07 (7)	07:13 (10) 20:17	06:47 (3) 07:55 (8)	05:04 21:23	05:44 (9) 06:16 (9)	04:18 22:15	05:06 (1) 05:28 (1)
12	08:53 15:57	07:57 17:06	09:56 (7) 18:11	06:44 11:07 (7)	07:10 (10) 20:19	06:44 (3) 07:55 (8)	05:02 21:25	05:45 (9) 06:17 (9)	04:17 22:16	05:07 (1) 05:28 (1)
13	08:52 15:59	07:54 17:08	09:55 (7) 18:13	06:41 11:06 (7)	07:07 (10) 20:22	06:41 (3) 07:55 (8)	05:00 21:27	05:45 (9) 06:17 (9)	04:16 22:17	05:06 (1) 05:28 (1)
14	08:51 16:01	07:52 17:11	09:52 (7) 18:15	06:38 11:06 (7)	07:04 (10) 20:24	06:40 (3) 07:56 (8)	04:58 21:29	05:44 (9) 06:17 (9)	04:16 22:18	05:07 (1) 05:28 (1)
15	08:50 16:03	07:49 17:13	09:51 (7) 18:18	06:35 11:06 (7)	07:02 (10) 20:26	06:39 (3) 07:55 (8)	04:56 21:31	05:44 (9) 06:17 (9)	04:16 22:19	05:07 (1) 05:29 (1)
16	08:48 16:05	07:47 17:16	09:49 (7) 18:20	06:33 11:05 (7)	07:01 (10) 20:28	06:38 (3) 07:55 (8)	04:54 21:34	05:44 (9) 06:17 (9)	04:15 22:19	05:08 (1) 05:29 (1)
17	08:47 16:07	07:45 17:18	09:47 (7) 18:22	06:30 11:04 (7)	07:00 (10) 20:30	06:39 (3) 07:55 (8)	04:52 21:36	05:44 (9) 06:17 (9)	04:15 22:20	05:08 (1) 05:29 (1)
18	08:46 16:09	07:42 17:20	09:47 (7) 18:24	06:27 11:03 (7)	06:59 (10) 20:33	06:39 (3) 07:54 (8)	04:50 21:38	05:45 (9) 06:17 (9)	04:15 22:20	05:08 (1) 05:29 (1)
19	08:44 16:11	07:40 17:23	09:45 (7) 18:26	06:24 11:02 (7)	06:58 (10) 20:35	06:40 (3) 07:55 (8)	04:48 21:40	05:44 (9) 06:17 (9)	04:15 22:21	05:09 (1) 05:29 (1)
20	08:43 16:13	07:37 17:25	09:44 (7) 18:29	06:21 11:01 (7)	06:58 (10) 20:37	06:41 (3) 07:54 (8)	04:46 21:42	05:44 (9) 06:16 (9)	04:15 22:21	05:09 (1) 05:30 (1)
21	08:41 16:15	07:34 17:27	09:43 (7) 18:31	06:19 11:02 (7)	06:59 (10) 20:39	06:43 (3) 07:54 (8)	04:44 21:43	05:18 (1) 06:17 (9)	04:15 22:21	05:09 (1) 05:30 (1)
22	08:40 16:17	07:32 17:30	09:42 (7) 18:33	06:16 11:02 (7)	06:59 (10) 20:41	06:45 (3) 07:53 (8)	04:42 21:45	05:16 (1) 06:16 (9)	04:15 22:22	05:09 (1) 05:30 (1)
23	08:38 16:19	07:29 17:32	09:40 (7) 18:35	06:13 11:03 (7)	06:59 (10) 20:44	07:06 (8) 07:53 (8)	04:41 21:47	05:15 (1) 06:16 (9)	04:15 22:22	05:10 (1) 05:31 (1)
24	08:36 16:22	07:27 17:34	09:40 (7) 18:38	06:10 11:04 (7)	07:00 (10) 20:46	07:06 (8) 07:51 (8)	04:39 21:49	05:13 (1) 06:15 (9)	04:16 22:22	05:10 (1) 05:30 (1)
25	08:34 16:24	07:24 17:37	09:39 (7) 18:40	06:07 11:05 (7)	07:01 (10) 20:48	07:07 (8) 07:51 (8)	04:37 21:51	05:12 (1) 06:15 (9)	04:16 22:22	05:09 (1) 05:30 (1)
26	08:33 16:26	07:21 17:39	09:38 (7) 18:42	06:05 11:05 (7)	07:03 (10) 20:50	07:06 (8) 07:50 (8)	04:36 21:53	05:10 (1) 06:14 (9)	04:17 22:22	05:10 (1) 05:31 (1)
27	08:31 16:28	07:19 17:41	09:37 (7) 18:44	06:02 11:06 (7)	09:32 (7) 20:53	07:07 (8) 07:49 (8)	04:34 21:54	05:09 (1) 06:14 (9)	04:17 22:21	05:10 (1) 05:31 (1)
28	08:29 16:31	07:16 17:44	09:36 (7) 11:07 (7)	05:59 18:46	09:32 (7) 20:55	07:08 (8) 07:48 (8)	04:32 21:56	05:08 (1) 06:14 (9)	04:18 22:21	05:10 (1) 05:31 (1)
29	08:27 16:33			06:56 19:49	10:33 (7) 20:57	07:08 (8) 07:47 (8)	04:31 21:58	05:07 (1) 06:14 (9)	04:18 22:21	05:11 (1) 05:32 (1)
30	08:25 16:35			06:53 19:51	10:34 (7) 20:59	07:10 (8) 07:46 (8)	04:30 21:59	05:06 (1) 06:13 (9)	04:19 22:20	05:10 (1) 05:32 (1)
31	08:23 16:38			06:51 19:53	10:36 (7) 11:42 (7)		04:28 22:01	05:04 (1) 06:12 (9)		
Potential sun hours	227	262	365	429	515	539	744			
Total, worst case		1428	3091	1685	1128		0.56			
Sun reduction		0.19	0.40	0.43	0.58		1.00			
Oper. time red.		1.00	1.00	1.00	1.00		1.00			
Wind dir. red.		1.00	1.00	1.00	1.00		1.00			
Total reduction		0.19	0.40	0.43	0.58		0.56			
Total, real		277	1245	717	656		416			

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Liepkalni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (796)
 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	05:10 (1)	05:09	05:55 (9)	06:15	06:46 (3)	07:18	07:48 (10)	07:28	09:31 (7)	08:33	
2	04:21	05:11 (1)	05:11	05:56 (9)	06:17	06:48 (3)	07:21	07:50 (10)	07:30	09:35 (7)	08:35	
3	04:22	05:11 (1)	05:13	05:55 (9)	06:19	06:50 (3)	07:23	07:53 (8)	07:32	09:39 (7)	08:37	
4	04:23	05:11 (1)	05:15	05:56 (9)	06:21	06:52 (3)	07:25	07:54 (8)	07:34	09:45 (7)	08:38	
5	04:24	05:11 (1)	05:17	05:56 (9)	06:23	06:53 (3)	07:27	07:55 (8)	07:36	09:58 (7)	08:40	
6	04:25	05:11 (1)	05:20	05:57 (9)	06:26	06:54 (3)	07:29	07:56 (8)	07:39		08:42	
7	04:26	05:11 (1)	05:22	05:58 (9)	06:28	06:55 (3)	07:31	07:57 (8)	07:41		08:43	
8	04:27	05:11 (1)	05:24	05:59 (9)	06:30	06:56 (3)	07:34	07:58 (8)	07:44		08:45	
9	04:29	05:11 (1)	05:26	06:01 (9)	06:32	06:57 (3)	07:36	07:59 (8)	07:46		08:46	
10	04:30	05:11 (1)	05:28	06:02 (9)	06:34	06:58 (3)	07:38	07:60 (8)	07:48		08:47	
11	04:32	05:12 (1)	05:30	06:05 (9)	06:36	06:59 (3)	07:40	07:61 (8)	07:51		08:49	
12	04:33	05:12 (1)	05:32	06:06 (9)	06:38	06:59 (3)	07:42	07:62 (8)	07:53		08:50	
13	04:34	05:13 (1)	05:34	06:07 (9)	06:40	06:59 (3)	07:45	07:63 (8)	07:55		08:51	
14	04:36	05:15 (1)	05:37	06:09 (9)	06:42	06:59 (3)	07:47	07:64 (8)	07:57		08:52	
15	04:38	05:16 (1)	05:39	06:10 (9)	06:45	06:59 (3)	07:49	07:65 (8)	08:00		08:54	
16	04:39	05:18 (1)	05:41	06:12 (9)	06:47	06:59 (3)	07:51	07:66 (8)	08:02		08:55	
17	04:41	05:19 (1)	05:43	06:14 (9)	06:49	06:59 (3)	07:53	07:67 (8)	08:04		08:55	
18	04:43	05:21 (1)	05:45	06:16 (9)	06:51	06:59 (3)	07:55	07:68 (8)	08:06		08:56	
19	04:44	05:22 (1)	05:47	06:18 (9)	06:53	06:59 (3)	07:57	07:69 (8)	08:08		08:57	
20	04:46	05:24 (1)	05:49	06:20 (9)	06:55	06:59 (3)	07:59	07:70 (8)	08:10		08:58	
21	04:48	05:25 (1)	05:51	06:22 (9)	06:57	06:59 (3)	08:01	07:71 (8)	08:11		08:58	
22	04:50	05:27 (1)	05:54	06:24 (9)	06:59	06:59 (3)	08:03	07:72 (8)	08:12		08:59	
23	04:52	05:29 (1)	05:56	06:26 (9)	07:01	06:59 (3)	08:05	07:73 (8)	08:13		08:59	
24	04:53	05:30 (1)	05:58	06:28 (9)	07:03	06:59 (3)	08:07	07:74 (8)	08:14		09:00	
25	04:55	05:32 (1)	06:00	06:30 (9)	07:05	06:59 (3)	08:09	07:75 (8)	08:15		09:00	
26	04:57	05:34 (1)	06:02	06:32 (9)	07:07	06:59 (3)	08:11	07:76 (8)	08:16		09:01	
27	04:59	05:36 (1)	06:04	06:34 (9)	07:09	06:59 (3)	08:13	07:77 (8)	08:17		09:01	
28	05:01	05:38 (1)	06:06	06:36 (9)	07:11	06:59 (3)	08:15	07:78 (8)	08:18		09:01	
29	05:03	05:40 (1)	06:09	06:38 (9)	07:13	06:59 (3)	08:17	07:79 (8)	08:19		09:01	
30	05:05	05:42 (1)	06:11	06:40 (9)	07:15	06:59 (3)	08:19	07:80 (8)	08:20		09:01	
31	05:07	05:44 (1)	06:13	06:42 (9)	07:17	06:59 (3)	08:21	07:81 (8)	08:21		09:01	
Potential sun hours	538		474		386		321		241		207	
Total, worst case	1082		1472		2572		2555		112			
Sun reduction	0.47		0.50		0.46		0.28		0.08			
Oper. time red.	1.00		1.00		1.00		1.00		1.00			
Wind dir. red.	1.00		1.00		1.00		1.00		1.00			
Total reduction	0.47		0.50		0.46		0.28		0.08			
Total, real	508		743		1188		723		9			

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lukstini (94880090014001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (775)

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	09:01		09:43 (7)	08:21		09:52 (7)	07:14		08:08 (6)	06:48		07:29 (5)	05:28		04:27			
	15:40	6	09:49 (7)	16:40	7	09:59 (7)	17:46	29	08:37 (6)	19:55	22	07:51 (5)	21:01		22:03			
2	09:00		09:43 (7)	08:19			07:11		08:08 (6)	06:45		07:29 (5)	05:25		04:26			
	15:41	8	09:51 (7)	16:42			17:48	28	08:36 (6)	19:57	21	07:50 (5)	21:04		22:04			
3	09:00		09:42 (7)	08:17			07:08		08:09 (6)	06:42		07:29 (5)	05:23		04:25			
	15:42	10	09:52 (7)	16:45			17:51	26	08:35 (6)	20:00	19	07:48 (5)	21:06		22:06			
4	08:59		09:41 (7)	08:15			07:06		08:10 (6)	06:39		07:31 (5)	05:21		04:23			
	15:44	12	09:53 (7)	16:47			17:53	24	08:34 (6)	20:02	16	07:47 (5)	21:08		22:07			
5	08:59		09:40 (7)	08:13			07:03		08:11 (6)	06:37		07:33 (5)	05:18		04:22			
	15:45	14	09:54 (7)	16:49			17:55	21	08:32 (6)	20:04	11	07:44 (5)	21:10		22:08			
6	08:58		09:39 (7)	08:10			07:00		08:13 (6)	06:34			05:16		04:21			
	15:47	16	09:55 (7)	16:52			17:57	17	08:30 (6)	20:06			21:12		22:10			
7	08:58		09:38 (7)	08:08			06:57		08:15 (6)	06:31			05:13		04:20			
	15:48	18	09:56 (7)	16:54			18:00	11	08:26 (6)	20:08			21:15		22:11			
8	08:57		09:38 (7)	08:06			06:55			06:28			05:11		04:20			
	15:50	19	09:57 (7)	16:57			18:02			20:11			21:17		22:12			
9	08:56		09:38 (7)	08:04			06:52			06:26			05:09		04:19			
	15:51	20	09:58 (7)	16:59			18:04			20:13			21:19		22:13			
10	08:55		09:38 (7)	08:01		08:32 (8)	06:49			06:23			05:07		04:18			
	15:53	21	09:59 (7)	17:01	1	08:33 (8)	18:06			20:15			21:21		22:14			
11	08:54		09:38 (7)	07:59		08:29 (8)	06:46			06:20			05:04		04:17			
	15:55	22	10:00 (7)	17:04	7	08:36 (8)	18:09			20:17			21:23		22:15			
12	08:53		09:38 (7)	07:57		08:27 (8)	06:44			06:17			05:02		04:17			
	15:57	23	10:01 (7)	17:06	11	08:38 (8)	18:11			20:19			21:25		22:16			
13	08:52		09:38 (7)	07:54		08:24 (8)	06:41			06:15			05:00		04:16			
	15:59	24	10:02 (7)	17:09	15	08:39 (8)	18:13			20:22			21:27		22:17			
14	08:51		09:38 (7)	07:52		08:21 (8)	06:38			06:12			04:58		04:16			
	16:01	24	10:02 (7)	17:11	18	08:39 (8)	18:15			20:24			21:29		22:18			
15	08:50		09:38 (7)	07:50		08:20 (8)	06:35			06:09			04:56		04:16			
	16:03	25	10:03 (7)	17:13	21	08:41 (8)	18:18			20:26			21:32		22:19			
16	08:48		09:38 (7)	07:47		08:19 (8)	06:33			06:07			04:54		04:15			
	16:05	26	10:04 (7)	17:16	22	08:41 (8)	18:20			20:28			21:34		22:19			
17	08:47		09:38 (7)	07:45		08:16 (6)	06:30			06:04			04:52		04:15			
	16:07	26	10:04 (7)	17:18	24	08:40 (8)	18:22			20:30			21:36		22:20			
18	08:46		09:39 (7)	07:42		08:14 (6)	06:27			06:01			04:50		04:15			
	16:09	26	10:05 (7)	17:20	27	08:41 (8)	18:24			20:33			21:38		22:20			
19	08:44		09:39 (7)	07:40		08:12 (6)	06:24			05:59			04:48		04:15			
	16:11	26	10:05 (7)	17:23	29	08:41 (8)	18:27			20:35			21:40		22:21			
20	08:43		09:39 (7)	07:37		08:11 (6)	06:21			05:56			04:46		04:15			
	16:13	26	10:05 (7)	17:25	29	08:40 (8)	18:29			20:37			21:42		22:21			
21	08:41		09:39 (7)	07:35		08:10 (6)	06:19			05:53			04:44		04:15			
	16:15	27	10:06 (7)	17:27	30	08:40 (8)	18:31			20:39			21:44		22:21			
22	08:40		09:40 (7)	07:32		08:09 (6)	06:16		06:42 (5)	05:51			04:42		04:15			
	16:17	26	10:06 (7)	17:30	30	08:39 (8)	18:33	7	06:49 (5)	20:42			21:45		22:22			
23	08:38		09:40 (7)	07:29		08:08 (6)	06:13		06:39 (5)	05:48			04:41		04:15			
	16:19	26	10:06 (7)	17:32	30	08:38 (6)	18:35	12	06:51 (5)	20:44			21:47		22:22			
24	08:36		09:41 (7)	07:27		08:09 (6)	06:10		06:36 (5)	05:45			04:39		04:16			
	16:22	25	10:06 (7)	17:34	30	08:39 (6)	18:38	16	06:52 (5)	20:46			21:49		22:22			
25	08:35		09:41 (7)	07:24		08:08 (6)	06:07		06:33 (5)	05:43			04:37		04:16			
	16:24	25	10:06 (7)	17:37	30	08:38 (6)	18:40	19	06:52 (5)	20:48			21:51		22:22			
26	08:33		09:42 (7)	07:22		08:08 (6)	06:05		06:31 (5)	05:40			04:36		04:17			
	16:26	24	10:06 (7)	17:39	30	08:38 (6)	18:42	22	06:53 (5)	20:50			21:53		22:22			
27	08:31		09:43 (7)	07:19		08:07 (6)	06:02		06:30 (5)	05:38			04:34		04:17			
	16:28	23	10:06 (7)	17:41	30	08:37 (6)	18:44	23	06:53 (5)	20:53			21:55		22:22			
28	08:29		09:44 (7)	07:16		08:08 (6)	05:59		06:29 (5)	05:35			04:32		04:18			
	16:31	21	10:05 (7)	17:44	30	08:38 (6)	18:46	24	06:53 (5)	20:55			21:56		22:21			
29	08:27		09:44 (7)				06:56		07:28 (5)	05:33			04:31		04:18			
	16:33	20	10:04 (7)				19:49	25	07:53 (5)	20:57			21:58		22:21			
30	08:25		09:46 (7)				06:53		07:28 (5)	05:30			04:30		04:19			
	16:35	17	10:03 (7)				19:51	24	07:52 (5)	20:59			22:00		22:21			
31	08:23		09:48 (7)				06:51		07:29 (5)				04:28					
	16:38	14	10:02 (7)				19:53	23	07:52 (5)				22:01					
Potential sun hours	227			262			365			429			515		539			
Total, worst case		640			451		351			89								
Sun reduction		0.11			0.19		0.40			0.43								
Oper. time red.		1.00			1.00		1.00			1.00								
Wind dir. red.		1.00			1.00		1.00			1.00								
Total reduction		0.11			0.19		0.40			0.43								
Total, real		70			88		141			38								

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lukstini (94880090014001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (775)

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	05:09	06:15	07:19	07:28	08:33
	22:20	21:35	20:17	18:54	16:32	15:37
2	04:21	05:11	06:17	07:21	07:30	08:35
	22:20	21:33	20:15	18:51	16:30	15:36
3	04:22	05:13	06:19	07:23	07:32	08:37
	22:19	21:31	20:12	18:48	16:27	15:35
4	04:23	05:15	06:21	07:25	07:35	08:38
	22:18	21:29	20:09	18:45	16:25	15:34
5	04:24	05:17	06:23	07:27	07:37	08:40
	22:18	21:27	20:06	18:42	16:23	15:34
6	04:25	05:20	06:26	07:29	08:54 (6)	07:39
	22:17	21:24	20:04	18:40	09:00 (6)	16:21
7	04:26	05:22	06:28	07:31	08:49 (6)	07:41
	22:16	21:22	20:01	18:37	09:04 (6)	16:18
8	04:27	05:24	06:30	07:34	08:48 (6)	07:44
	22:15	21:20	19:58	18:34	09:07 (6)	16:16
9	04:29	05:26	06:32	07:36	08:45 (6)	07:46
	22:14	21:17	19:55	18:31	09:08 (6)	16:14
10	04:30	05:28	06:34	07:38	08:44 (6)	07:48
	22:13	21:15	19:52	18:29	09:08 (6)	16:12
11	04:31	05:30	06:36	07:40	08:43 (6)	07:51
	22:12	21:12	19:50	18:26	09:10 (6)	16:10
12	04:33	05:32	06:38	07:42	08:42 (6)	07:53
	22:10	21:10	19:47	18:23	09:10 (6)	16:08
13	04:34	05:34	06:40	07:45	08:41 (6)	07:55
	22:09	21:07	19:44	18:21	09:10 (6)	16:06
14	04:36	05:37	06:42	07:47	08:40 (6)	07:57
	22:08	21:05	19:41	18:18	09:10 (6)	16:04
15	04:38	05:39	06:45	07:49	08:40 (6)	08:00
	22:06	21:02	19:38	18:15	09:11 (6)	16:02
16	04:39	05:41	06:47	07:51	08:40 (6)	08:02
	22:05	21:00	19:36	18:13	09:10 (6)	16:00
17	04:41	05:43	06:49	07:54	08:40 (6)	08:04
	22:03	20:57	19:33	18:10	09:10 (6)	15:58
18	04:43	05:45	06:51	07:56	08:40 (6)	08:06
	22:02	20:55	19:30	18:07	09:10 (6)	15:56
19	04:44	05:47	06:53	07:58	08:40 (6)	08:09
	22:00	20:52	19:27	18:05	09:09 (8)	15:55
20	04:46	05:49	06:55	08:00	08:41 (6)	08:11
	21:59	20:50	19:24	18:02	09:10 (8)	15:53
21	04:48	05:51	06:57	08:02	08:41 (6)	08:13
	21:57	20:47	19:22	17:59	09:10 (8)	15:51
22	04:50	05:54	06:59	08:05	08:42 (6)	08:15
	21:55	20:44	19:19	17:57	09:11 (8)	15:50
23	04:51	05:56	07:01	08:07	08:43 (6)	08:17
	21:53	20:42	19:16	17:54	09:11 (8)	15:48
24	04:53	05:58	07:04	08:09	08:44 (6)	08:19
	21:52	20:39	19:13	17:52	09:10 (8)	15:46
25	04:55	06:00	07:06	07:12	07:47 (6)	08:21
	21:50	20:36	19:10	16:49	08:11 (8)	15:45
26	04:57	06:02	07:08	07:14	07:48 (8)	08:23
	21:48	20:34	19:07	16:47	08:10 (8)	15:44
27	04:59	06:04	07:10	07:16	07:49 (8)	08:25
	21:46	20:31	19:05	16:44	08:10 (8)	15:42
28	05:01	06:06	07:12	07:18	07:51 (8)	08:27
	21:44	20:28	19:02	16:42	08:09 (8)	15:41
29	05:03	06:09	07:14	07:21	07:54 (8)	08:29
	21:42	20:26	18:59	16:39	08:08 (8)	15:40
30	05:05	06:11	07:16	07:23	07:56 (8)	08:31
	21:40	20:23	18:56	16:37	08:06 (8)	15:38
31	05:07	06:13		07:25	07:59 (8)	
	21:38	20:20		16:34	08:05 (8)	
Potential sun hours	538	474	386	321	241	207
Total, worst case			288	607	481	175
Sun reduction			0.46	0.28	0.08	0.06
Oper. time red.			1.00	1.00	1.00	1.00
Wind dir. red.			1.00	1.00	1.00	1.00
Total reduction			0.46	0.28	0.08	0.06
Total, real			133	172	38	11

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lukstini (94880090014002) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (778)

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	09:01		09:46 (7)	08:21			07:14		08:22 (6)	06:48		07:36 (5)	05:28			04:27		
	15:40	19	10:05 (7)	16:40			17:46	24	08:46 (6)	19:55	20	07:56 (5)	21:01			22:03		
2	09:00		09:46 (7)	08:19			07:11		08:23 (6)	06:45		07:37 (5)	05:25			04:26		
	15:41	21	10:07 (7)	16:42			17:48	21	08:44 (6)	19:57	17	07:54 (5)	21:04			22:04		
3	09:00		09:46 (7)	08:17			07:08		08:24 (6)	06:42		07:39 (5)	05:23			04:25		
	15:42	21	10:07 (7)	16:45			17:51	18	08:42 (6)	20:00	12	07:51 (5)	21:06			22:06		
4	08:59		09:46 (7)	08:15			07:06		07:33 (9)	06:39		07:43 (5)	05:21			04:23		
	15:44	22	10:11 (7)	16:47			17:53	12	08:39 (6)	20:02	5	07:48 (5)	21:08			22:07		
5	08:59		09:46 (7)	08:13			07:03		07:30 (9)	06:37			05:18			04:22		
	15:45	22	10:08 (7)	16:49			17:55	6	07:36 (9)	20:04			21:10			22:08		
6	08:58		09:46 (7)	08:10			07:00		07:27 (9)	06:34			05:16			04:21		
	15:47	23	10:09 (7)	16:52			17:57	10	07:37 (9)	20:06			21:12			22:10		
7	08:58		09:46 (7)	08:08		08:39 (8)	06:57		07:24 (9)	06:31			05:13			04:20		
	15:48	24	10:10 (7)	16:54	2	08:41 (8)	18:00	14	07:38 (9)	20:08			21:15			22:11		
8	08:57		09:46 (7)	08:06		08:37 (8)	06:55		07:21 (9)	06:28			05:11			04:20		
	15:50	25	10:11 (7)	16:57	8	08:45 (8)	18:02	17	07:38 (9)	20:11			21:17			22:12		
9	08:56		09:47 (7)	08:04		08:34 (8)	06:52		07:18 (9)	06:26			05:09			04:19		
	15:51	24	10:11 (7)	16:59	12	08:46 (8)	18:04	20	07:38 (9)	20:13			21:19			22:13		
10	08:55		09:47 (7)	08:01		08:32 (8)	06:49		07:18 (9)	06:23			05:07			04:18		
	15:53	25	10:12 (7)	17:01	16	08:48 (8)	18:06	21	07:39 (9)	20:15			21:21			22:14		
11	08:54		09:48 (7)	07:59		08:29 (8)	06:46		07:17 (9)	06:20			05:04			04:17		
	15:55	25	10:13 (7)	17:04	19	08:48 (8)	18:09	22	07:39 (9)	20:17			21:23			22:15		
12	08:53		09:47 (7)	07:57		08:28 (8)	06:44		07:17 (9)	06:17			05:02			04:17		
	15:57	26	10:13 (7)	17:06	21	08:49 (8)	18:11	21	07:38 (9)	20:19			21:25			22:16		
13	08:52		09:48 (7)	07:54		08:27 (8)	06:41		07:17 (9)	06:15			05:00			04:16		
	15:59	26	10:14 (7)	17:09	22	08:49 (8)	18:13	20	07:37 (9)	20:22			21:27			22:17		
14	08:51		09:48 (7)	07:52		08:25 (6)	06:38		07:18 (9)	06:12			04:58			04:16		
	16:01	26	10:14 (7)	17:11	24	08:49 (8)	18:15	18	07:36 (9)	20:24			21:29			22:18		
15	08:50		09:49 (7)	07:50		08:24 (6)	06:35		07:20 (9)	06:09			04:56			04:16		
	16:03	26	10:15 (7)	17:13	26	08:50 (8)	18:18	15	07:35 (9)	20:26			21:32			22:19		
16	08:48		09:49 (7)	07:47		08:23 (6)	06:33		07:21 (9)	06:07			04:54			04:15		
	16:05	26	10:15 (7)	17:16	27	08:50 (8)	18:20	11	07:32 (9)	20:28			21:34			22:19		
17	08:47		09:49 (7)	07:45		08:21 (6)	06:30		07:25 (9)	06:04			04:52			04:15		
	16:07	26	10:15 (7)	17:18	28	08:49 (8)	18:22	3	07:28 (9)	20:30			21:36			22:20		
18	08:46		09:50 (7)	07:42		08:21 (6)	06:27			06:01			04:50			04:15		
	16:09	26	10:16 (7)	17:20	29	08:50 (6)	18:24			20:33			21:38			22:20		
19	08:44		09:50 (7)	07:40		08:20 (6)	06:24		06:50 (5)	05:59			04:48			04:15		
	16:11	26	10:16 (7)	17:23	30	08:50 (6)	18:27	1	06:51 (5)	20:35			21:40			22:21		
20	08:43		09:51 (7)	07:37		08:19 (6)	06:21		06:47 (5)	05:56			04:46			04:15		
	16:13	25	10:16 (7)	17:25	31	08:50 (6)	18:29	9	06:56 (5)	20:37			21:42			22:21		
21	08:41		09:51 (7)	07:35		08:20 (6)	06:19		06:45 (5)	05:53			04:44			04:15		
	16:15	25	10:16 (7)	17:27	31	08:51 (6)	18:31	13	06:58 (5)	20:39			21:44			22:21		
22	08:40		09:52 (7)	07:32		08:19 (6)	06:16		06:42 (5)	05:51			04:42			04:15		
	16:17	24	10:16 (7)	17:30	31	08:50 (6)	18:33	17	06:59 (5)	20:42			21:45			22:22		
23	08:38		09:52 (7)	07:29		08:19 (6)	06:13		06:39 (5)	05:48			04:41			04:15		
	16:19	24	10:16 (7)	17:32	31	08:50 (6)	18:35	21	07:00 (5)	20:44			21:47			22:22		
24	08:36		09:53 (7)	07:27		08:20 (6)	06:10		06:37 (5)	05:45			04:39			04:16		
	16:22	22	10:15 (7)	17:34	30	08:50 (6)	18:38	23	07:00 (5)	20:46			21:49			22:22		
25	08:35		09:54 (7)	07:24		08:19 (6)	06:07		06:36 (5)	05:43			04:37			04:16		
	16:24	21	10:15 (7)	17:37	31	08:50 (6)	18:40	24	07:00 (5)	20:48			21:51			22:22		
26	08:33		09:56 (7)	07:22		08:19 (6)	06:05		06:36 (5)	05:40			04:36			04:17		
	16:26	18	10:14 (7)	17:39	30	08:49 (6)	18:42	25	07:01 (5)	20:50			21:53			22:22		
27	08:31		09:57 (7)	07:19		08:20 (6)	06:02		06:35 (5)	05:38			04:34			04:17		
	16:28	16	10:13 (7)	17:41	28	08:48 (6)	18:44	26	07:01 (5)	20:53			21:55			22:22		
28	08:29		09:59 (7)	07:16		08:21 (6)	05:59		06:35 (5)	05:35			04:32			04:18		
	16:31	13	10:12 (7)	17:44	26	08:47 (6)	18:46	25	07:00 (5)	20:55			21:56			22:21		
29	08:27		10:02 (7)				06:56		07:35 (5)	05:33			04:31			04:18		
	16:33	6	10:08 (7)				19:49	24	07:59 (5)	20:57			21:58			22:21		
30	08:25						06:53		07:34 (5)	05:30			04:30			04:19		
	16:35						19:51	24	07:58 (5)	20:59			22:00			22:21		
31	08:23						06:51		07:36 (5)				04:28					
	16:38						19:53	22	07:58 (5)				22:01					
Potential sun hours	227			262			365			429			515			539		
Total, worst case		653			533			527			54							
Sun reduction		0.11			0.19			0.40			0.43							
Oper. time red.		1.00			1.00			1.00			1.00							
Wind dir. red.		1.00			1.00			1.00			1.00							
Total reduction		0.11			0.19			0.40			0.43							
Total, real		71			104			212			23							

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Lukstini (94880090014002) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (778)
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	05:09	06:15	07:19	07:57 (9)	08:02 (8)
	22:20	21:35	20:17	18:53	16:32	15:37
2	04:21	05:11	06:17	07:21	07:56 (9)	08:04 (8)
	22:20	21:33	20:15	18:51	16:30	15:36
3	04:22	05:13	06:19	07:23	07:55 (9)	08:07 (8)
	22:19	21:31	20:12	18:48	16:27	15:35
4	04:23	05:15	06:21	07:25	07:56 (9)	08:09 (8)
	22:18	21:29	20:09	18:45	16:25	15:34
5	04:24	05:17	06:23	07:27	07:57 (9)	08:10 (8)
	22:18	21:27	20:06	18:42	16:23	15:34
6	04:25	05:20	06:26	07:29	07:59 (9)	08:12 (8)
	22:17	21:24	20:04	18:40	16:21	15:33
7	04:26	05:22	06:28	07:31	08:01 (9)	08:14 (8)
	22:16	21:22	20:01	18:37	16:18	15:32
8	04:27	05:24	06:30	07:34	08:04 (9)	08:17 (8)
	22:15	21:20	19:58	18:34	16:16	15:31
9	04:29	05:26	06:32	07:36	08:06 (9)	08:19 (8)
	22:14	21:17	19:55	18:31	16:14	15:31
10	04:30	05:28	06:34	07:38	08:08 (9)	08:21 (8)
	22:13	21:15	19:52	18:29	16:12	15:30
11	04:31	05:30	06:36	07:40	08:10 (9)	08:23 (8)
	22:12	21:12	19:50	18:26	16:10	15:30
12	04:33	05:32	06:38	07:42	08:12 (9)	08:25 (8)
	22:10	21:10	19:47	18:23	16:08	15:30
13	04:34	05:34	06:40	07:45	08:14 (9)	08:27 (8)
	22:09	21:07	19:44	18:21	16:06	15:29
14	04:36	05:37	06:42	07:47	08:16 (9)	08:29 (8)
	22:08	21:05	19:41	18:18	16:04	15:29
15	04:38	05:39	06:45	07:49	08:18 (9)	08:31 (8)
	22:06	21:02	19:38	18:15	16:02	15:29
16	04:39	05:41	06:47	07:51	08:20 (9)	08:33 (8)
	22:05	21:00	19:36	18:13	16:00	15:29
17	04:41	05:43	06:49	07:53	08:22 (9)	08:35 (8)
	22:03	20:57	19:33	18:10	15:58	15:29
18	04:43	05:45	06:51	07:55	08:24 (9)	08:37 (8)
	22:02	20:55	19:30	18:07	15:56	15:29
19	04:44	05:47	06:53	07:57	08:26 (9)	08:39 (8)
	22:00	20:52	19:27	18:05	15:55	15:29
20	04:46	05:49	06:55	07:59	08:28 (9)	08:41 (8)
	21:59	20:50	19:24	18:02	15:53	15:30
21	04:48	05:51	06:57	08:02	08:30 (9)	08:43 (8)
	21:57	20:47	19:22	17:59	15:51	15:30
22	04:50	05:54	07:00	08:05	08:32 (9)	08:45 (8)
	21:55	20:44	19:19	17:57	15:50	15:31
23	04:51	05:56	07:01	08:07	08:34 (9)	08:47 (8)
	21:53	20:42	19:16	17:54	15:48	15:31
24	04:53	05:58	07:04	08:09	08:36 (9)	08:49 (8)
	21:52	20:39	19:13	17:52	15:46	15:32
25	04:55	06:00	07:06	08:12	08:38 (9)	08:51 (8)
	21:50	20:36	19:10	17:49	15:45	15:32
26	04:57	06:02	07:08	08:14	08:40 (9)	08:53 (8)
	21:48	20:34	19:07	17:47	15:44	15:33
27	04:59	06:04	07:10	08:16	08:42 (9)	08:55 (8)
	21:46	20:31	19:05	17:44	15:42	15:34
28	05:01	06:06	07:12	08:18	08:44 (9)	08:57 (8)
	21:44	20:28	19:02	17:42	15:41	15:35
29	05:03	06:09	07:14	08:21	08:46 (9)	08:59 (8)
	21:42	20:26	18:59	17:39	15:40	15:36
30	05:05	06:11	07:16	08:23	08:48 (9)	09:01 (8)
	21:40	20:23	18:56	17:37	15:38	15:37
31	05:07	06:13		08:25	08:50 (9)	09:03 (8)
	21:38	20:20		16:34	15:38	15:38
Potential sun hours	538	474	386	321	241	207
Total, worst case			373	721	437	590
Sun reduction			0.46	0.28	0.08	0.06
Oper. time red.			1.00	1.00	1.00	1.00
Wind dir. red.			1.00	1.00	1.00	1.00
Total reduction			0.46	0.28	0.08	0.06
Total, real			172	204	34	36

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Liksnas - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (470) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
0.80 1.82 4.75 6.09 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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	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	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:01	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Livas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (469)
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 16:40	08:21 16:40 16:42	07:13 17:46 17:48	16:59 (2) 17:16 (2) 17:18 (2)	06:48 19:55 19:57	05:27 21:01 21:03	04:27 22:02 22:04	04:20 22:20 22:19	05:09 21:35 21:33	06:15 20:17 20:14	07:18 18:53 18:50	07:27 16:32 16:29
2	09:00 15:40 16:42	08:19 16:42 16:44	07:11 17:48 17:50	16:59 (2) 17:18 (2) 17:19 (2)	06:45 19:57 19:59	05:25 21:03 21:06	04:25 22:04 22:05	04:21 22:19 22:19	05:11 21:33 21:31	06:17 20:14 20:12	07:20 18:50 18:48	07:30 16:32 16:27
3	09:00 15:42 16:44	08:17 16:44 16:47	07:08 17:50 17:52	16:58 (2) 17:19 (2) 17:19 (2)	06:42 19:59 20:01	05:23 21:06 21:08	04:24 22:05 22:07	04:21 22:19 22:18	05:13 21:31 21:28	06:19 20:12 20:09	07:22 18:48 18:45	07:32 16:27 16:25
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Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case		32	156							194		
Sun reduction		0.19	0.40							0.28		
Oper. time red.		1.00	1.00							1.00		
Wind dir. red.		1.00	1.00							1.00		
Total reduction		0.19	0.40							0.28		
Total, real		6	63							55		

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Mazdzintari - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (458)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Medini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (465)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:18	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:14 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 10 (94010010901001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (625)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 10 (94010010901002) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (624)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:19	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 12 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (619)
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	09:01	08:21	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:36	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:03	18:08	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:56	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:40	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:14	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:37	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:04	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 13 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (629)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 13A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (640)
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	09:01	08:21	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:20	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:36	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:03	18:08	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:43	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:56	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
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	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:14	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
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	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
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	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 14 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (598)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 15 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (612)
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	09:01	08:21	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:36	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
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6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
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	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
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10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
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14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:40	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:37	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:04	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 16 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (637)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 16A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (597)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
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Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 17 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (639)
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	09:01	08:21	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:36	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
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	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
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	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
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	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
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20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
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	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
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26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
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	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:04	17:44	15:42	15:34
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	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	17:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	17:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 18 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (599)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 19 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (627)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

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2	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 20 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (623)
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	09:01	08:21	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:36	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:03	18:08	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:56	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:40	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:37	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:04	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 21 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (628)
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	09:01	08:21	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:36	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:03	18:08	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:56	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:40	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:37	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:04	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Merkela iela 23 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (602)
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	09:01	08:21	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:36	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:03	18:08	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:56	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:40	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:37	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:04	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Mežmales - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (769)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:02	04:27 22:03	04:20 22:20	05:09 21:36	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:37
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
4	09:00 15:43	08:15 16:47	07:06 17:53	06:40 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	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:11 16:52	07:00 17:57	06:34 20:06	05:16 21:13	04:21 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:18	08:43 15:32
8	08:57 15:50	08:06 16:57	06:55 18:02	06:28 20:11	05:11 21:17	04:20 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	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
10	08:55 15:53	08:02 17:01	06:49 18:06	06:23 20:15	05:07 21:21	04:18 22:15	04:30 22:13	05:28 21:15	06:34 19:53	07:38 18:29	07:48 16:12	08:48 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 22:16	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:17 20:20	05:02 21:25	04:17 22:16	04:33 22:11	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:30
13	08:52 15:59	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:28	04:16 22:17	04:34 22:09	05:34 21:08	06:40 19:44	07:45 18:21	07:55 16:06	08:52 15:29
14	08:51 16:01	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:58 16:04	08:53 15:29
15	08:50 16:03	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:07	05:39 21:03	06:45 19:39	07:49 18:15	08:00 16:02	08:54 15:29
16	08:49 16:05	07:47 17:16	06:33 18:20	06:07 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:55 15:29
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:21	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:07 15:56	08:57 15:29
19	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:35 17:27	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:51 20:47	06:57 19:22	08:03 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	04:50 21:55	05:54 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:48	04:15 22:22	04:51 21:54	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:34	06:10 18:38	05:45 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:37	07:06 19:10	07:12 16:49	08:21 15:45	09:01 15:32
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:51	04:35 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:24 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:26 15:42	09:01 15:34
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:32 21:56	04:18 22:22	05:01 21:44	06:06 20:28	07:12 19:02	07:19 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:35		06:53 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Mežvini 1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (468)
 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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	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	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:14 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
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29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Mežvini 2 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (462)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	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	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	07:16 20:23	07:23 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Mežares - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (773)
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	09:01	08:21	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:19	07:28	08:33
	15:40	16:40	17:46	19:55	21:02	22:03	22:20	21:36	20:18	18:54	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:36
3	09:00	08:17	07:08	06:42	05:23	04:25	04:22	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:51	20:00	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	09:00	08:15	07:06	06:40	05:21	04:23	04:23	05:15	06:21	07:25	07:35	08:38
	15:44	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:18	06:24	07:27	07:37	08:40
	15:45	16:50	17:55	20:04	21:10	22:09	22:18	21:27	20:07	18:42	16:23	15:34
6	08:58	08:11	07:00	06:34	05:16	04:21	04:25	05:20	06:26	07:29	07:39	08:42
	15:47	16:52	17:57	20:06	21:13	22:10	22:17	21:24	20:04	18:40	16:21	15:33
7	08:58	08:08	06:57	06:31	05:14	04:21	04:26	05:22	06:28	07:32	07:42	08:43
	15:48	16:54	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
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9	08:56	08:04	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	07:46	08:46
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10	08:55	08:02	06:49	06:23	05:07	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:07	20:15	21:21	22:14	22:13	21:15	19:53	18:29	16:12	15:30
11	08:54	07:59	06:47	06:20	05:04	04:18	04:32	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
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	16:01	17:11	18:16	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
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	16:03	17:13	18:18	20:26	21:32	22:19	22:07	21:03	19:39	18:15	16:02	15:29
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	16:05	17:16	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:13	16:00	15:29
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	16:07	17:18	18:22	20:31	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
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	16:11	17:23	18:27	20:35	21:40	22:21	22:00	20:52	19:27	18:05	15:55	15:29
20	08:43	07:37	06:22	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:30
21	08:41	07:35	06:19	05:53	04:44	04:15	04:48	05:52	06:57	08:03	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:22	17:59	15:51	15:30
22	08:40	07:32	06:16	05:51	04:42	04:15	04:50	05:54	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:42	21:46	22:22	21:55	20:44	19:19	17:57	15:50	15:31
23	08:38	07:29	06:13	05:48	04:41	04:16	04:52	05:56	07:02	08:07	08:17	09:00
	16:20	17:32	18:35	20:44	21:47	22:22	21:54	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:46	04:39	04:16	04:53	05:58	07:04	08:09	08:19	09:00
	16:22	17:34	18:38	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:46	15:32
25	08:35	07:24	06:08	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:01
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:37	19:10	16:49	15:45	15:32
26	08:33	07:22	06:05	05:40	04:36	04:17	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:51	21:53	22:22	21:48	20:34	19:08	16:47	15:44	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:29	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:33	04:18	05:01	06:07	07:12	07:19	08:27	09:01
	16:31	17:44	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
29	08:27		06:56	05:33	04:31	04:18	05:03	06:09	07:14	07:21	08:29	09:01
	16:33		19:49	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:40	15:36
30	08:25		06:54	05:30	04:30	04:19	05:05	06:11	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:39	15:37
31	08:23		06:51		04:28		05:07	06:13		07:25		09:01
	16:38		19:53		22:01		21:38	20:20		16:35		15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
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Table layout: For each day in each month the following matrix apply

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Miera iela 2 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (608)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:49	07:40 18:26	07:51 16:09	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:14 22:21	04:46 21:59	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:25	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Miera iela 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (738)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:49	07:40 18:26	07:51 16:09	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
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15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:55 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:14 22:21	04:46 21:59	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
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Total, worst case												
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Total reduction												
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Table layout: For each day in each month the following matrix apply

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Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Miera iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (632)
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

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2	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
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6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Muzeja iela 1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (720)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Muzeja iela 10 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (709)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Muzeja iela 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (713)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Muzeja iela 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (701)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Muzeja iela 6 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (733)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Muzeja iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (722)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Muzeja iela 8 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (696)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
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	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
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	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
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	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
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	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Muzeja iela 9 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (710)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:56 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 13 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (499)
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 16:40	07:13 17:46	06:47 19:55	05:27 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
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22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 14 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (491)
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
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 16 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (451)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	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	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:08 15:54	08:57 15:29
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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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 2 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (494)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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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	04:26 22:15	05:21 21:21	06:27 20:00	07:31 18:37	07:41 16:18	08:43 15:32
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11	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 21:09	06:38 19:46	07:42 18:23	07:53 16:07	08:50 15:29
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17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
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20	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 20 (94880100118001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (489)

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 16:40	07:13 17:46	06:47 19:55	05:27 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
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4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	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	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 20 (94880100123001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (590)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

		January	February		March		April		May	June	July	August	September		October		November	December				
1	09:00	08:21			07:13		16:46 (4)	06:48		18:58 (2)	05:27	04:27	04:20	05:09	06:15		07:18	07:27	08:33			
	15:39	16:40			17:46	23	17:09 (4)	19:55	20	19:18 (2)	21:01	22:02	22:20	21:35	20:17		18:53	16:32	15:37			
2	09:00	08:19			07:11		16:46 (4)	06:45		18:59 (2)	05:25	04:25	04:21	05:11	06:17		07:20	07:30	08:34			
	15:41	16:42			17:48	22	17:08 (4)	19:57	19	19:18 (2)	21:03	22:04	22:19	21:33	20:14		18:50	16:29	15:36			
3	08:59	08:17			07:08		16:46 (4)	06:42		18:59 (2)	05:23	04:24	04:22	05:13	06:19		07:22	07:32	08:36			
	15:42	16:44			17:50	21	17:07 (4)	19:59	17	19:16 (2)	21:05	22:05	22:19	21:31	20:12		18:48	16:27	15:35			
4	08:59	08:14			07:05		16:47 (4)	06:39		19:00 (2)	05:20	04:23	04:23	05:15	06:21		07:25	07:34	08:38			
	15:43	16:47			17:52	19	17:06 (4)	20:01	14	19:14 (2)	21:08	22:07	22:18	21:28	20:09		18:45	16:25	15:34			
5	08:58	08:12			07:02		16:48 (4)	06:36		19:02 (2)	05:18	04:22	04:24	05:17	06:23		07:27	07:37	08:40			
	15:45	16:49			17:55	16	17:04 (4)	20:04	9	19:11 (2)	21:10	22:08	22:17	21:26	20:06		18:42	16:22	15:33			
6	08:58	08:10			07:00		16:50 (4)	06:34		05:15	04:21	04:25	05:19	06:25	07:29		07:29	07:39	08:41			
	15:46	16:52			17:57	13	17:03 (4)	20:06		21:12	22:09	22:16	21:24	20:03			18:39	16:20	15:32			
7	08:57	08:08			06:57		16:54 (4)	06:31		05:13	04:20	04:26	05:21	06:27		18:59 (2)	07:31	17:27 (4)	07:41	08:43		
	15:48	16:54			17:59	5	16:59 (4)	20:08		21:14	22:11	22:15	21:22	20:01	8	19:07 (2)	18:37	17:37 (4)	16:18	15:32		
8	08:56	08:06			06:54			06:28		05:11	04:19	04:27	05:23	06:29		18:56 (2)	07:33	17:24 (4)	16:17 (4)	16:18	15:32	
	15:49	16:56			18:02			20:10		21:16	22:12	22:15	21:19	19:58	13	19:09 (2)	18:34	15	17:39 (4)	16:16	15:31	
9	08:56	08:03			06:52			06:25		05:09	04:19	04:28	05:26	06:32		18:54 (2)	07:35	17:23 (4)	16:17 (4)	16:16	15:31	
	15:51	16:59			18:04			20:12		21:19	22:13	22:13	21:17	19:55	16	19:10 (2)	18:31	17	17:40 (4)	16:14	15:31	
10	08:55	08:01			06:49			06:23		05:06	04:18	04:30	05:28	06:34		18:52 (2)	07:38	17:21 (4)	16:17 (4)	16:14	15:31	
	15:53	17:01			18:06			20:15		21:21	22:14	22:12	21:14	19:52	19	19:11 (2)	18:28	20	17:41 (4)	16:12	15:30	
11	08:54	07:59			06:46			06:20		05:04	04:17	04:31	05:30	06:36		18:51 (2)	07:40	17:20 (4)	16:12 (4)	16:10	15:30	
	15:55	17:03			18:08			20:17		21:23	22:15	22:11	21:12	19:49	20	19:11 (2)	18:26	21	17:41 (4)	16:10	15:30	
12	08:53	07:56			06:43			06:17		05:02	04:17	04:33	05:32	06:38		18:50 (2)	07:42	17:19 (4)	16:10 (4)	16:07	15:30	
	15:57	17:06			18:11			20:19		21:25	22:16	22:10	21:10	19:47	21	19:11 (2)	18:23	22	17:41 (4)	16:07	15:29	
13	08:51	07:54			06:14			05:04		05:04	04:15	04:34	05:34	06:40		18:50 (2)	07:44	17:19 (4)	16:07 (4)	16:07	15:29	
	15:58	17:08			18:13			20:21		21:27	22:17	22:09	21:07	19:44	21	19:11 (2)	18:20	23	17:42 (4)	16:05	15:29	
14	08:51	07:52			06:38			06:12		04:58	04:16	04:36	05:36	06:42		18:49 (2)	07:46	17:18 (4)	16:07 (4)	16:07	15:29	
	16:00	17:11			18:15			20:23		21:29	22:18	22:07	21:05	19:41	21	19:10 (2)	18:18	23	17:41 (4)	16:03	15:29	
15	08:49	07:49			06:35			06:09		04:56	04:15	04:37	05:38	06:44		18:49 (2)	07:49	17:18 (4)	16:07 (4)	16:07	15:29	
	16:02	17:13			18:17			20:26		21:31	22:18	22:06	21:02	19:38	18	19:07 (2)	18:15	23	17:41 (4)	16:02	15:29	
16	08:48	07:47			06:32			06:06		04:53	04:15	04:39	05:40	06:46		18:49 (2)	07:51	17:19 (4)	16:02 (4)	16:02	15:29	
	16:04	17:15			18:20			20:28		21:33	22:19	22:05	21:00	19:35	15	19:04 (2)	18:12	20	17:39 (4)	16:00	15:29	
17	08:47	07:44			06:29			06:04		04:51	04:15	04:41	05:43	06:48		18:49 (2)	07:53	17:19 (4)	16:00 (4)	16:00	15:29	
	16:06	17:18			18:22			20:30		21:35	22:19	22:03	20:57	19:32	12	19:01 (2)	18:10	17	17:36 (4)	15:58	15:29	
18	08:45	07:42			06:27			06:01		04:50	04:15	04:42	05:45	06:51		18:50 (2)	07:55	17:20 (4)	15:58 (4)	15:58	15:29	
	16:08	17:20			18:24			20:32		21:37	22:20	22:02	20:54	19:30	8	18:58 (2)	18:07	14	17:34 (4)	15:56	15:29	
19	08:44	07:39			06:24			05:58		04:44	04:15	04:44	05:47	06:53		18:51 (2)	07:58	17:21 (4)	15:54 (4)	15:54	15:29	
	16:10	17:26			18:26			20:35		21:39	22:21	22:00	20:52	19:29	5	18:56 (2)	18:04	10	17:31 (4)	15:54	15:29	
20	08:42	07:37			06:21			05:56		04:46	04:15	04:46	05:49	06:55			08:00	17:22 (4)	16:00 (4)	16:00	15:28	
	16:13	17:25			18:28			20:37		21:41	22:21	21:58	20:49	19:24			18:02	6	17:28 (4)	15:52	15:29	
21	08:41	07:34		16:53 (4)	06:18			05:53		04:44	04:15	04:47	05:51	06:57			08:02	17:25 (4)	16:03 (4)	16:03	15:28	
	16:15	17:27	2	16:55 (4)	18:31			20:39		21:43	22:21	21:57	20:47	19:21			17:59	1	17:26 (4)	15:51	15:30	
22	08:39	07:32		16:51 (4)	06:15			05:50		04:42	04:15	04:49	05:53	06:59			08:04		18:15	15:30	15:29	
	16:17	17:29	7	16:58 (4)	18:33			20:41		21:45	22:21	21:55	20:44	19:18			17:56		15:49	15:30	15:29	
23	08:38	07:29		16:49 (4)	06:13			05:48		04:40	04:15	04:51	05:55	07:01			08:07		18:17	15:29	15:29	
	16:19	17:32	12	17:01 (4)	18:35			20:43		21:47	22:21	21:53	20:41	19:16			17:54		15:48	15:31	15:29	
24	08:36	07:26		16:48 (4)	06:10		18:05 (2)	05:45		04:39	04:15	04:53	05:58	07:03			08:09		18:19	15:29	15:29	
	16:21	17:34	15	17:03 (4)	18:37	3	18:08 (2)	20:46		21:49	22:21	21:51	20:39	19:13			17:51		15:46	15:31	15:29	
25	08:34	07:24		16:48 (4)	06:07		18:03 (2)	05:43		04:37	04:16	04:55	06:00	07:05			07:11		18:21	15:30	15:29	
	16:24	17:36	18	17:06 (4)	18:39	7	18:10 (2)	20:48		21:51	22:21	21:49	20:36	19:10			16:49		15:45	15:32	15:29	
26	08:32	07:21		16:47 (4)	06:04		18:01 (2)	05:40		04:35	04:16	04:57	06:02	07:13			07:13		18:23	15:30	15:29	
	16:26	17:39	21	17:08 (4)	18:42	11	18:12 (2)	20:50		21:52	22:21	21:47	20:33	19:07			16:46		15:43	15:33	15:29	
27	08:31	07:19		16:46 (4)	06:01		18:00 (2)	05:37		04:34	04:17	04:59	06:04	07:10			07:16		18:25	15:30	15:29	
	16:28	17:41	23	17:09 (4)	18:44	14	18:14 (2)	20:52		21:54	22:21	21:45	20:31	19:04			16:44		15:42	15:34	15:29	
28	08:29	07:16		16:46 (4)	05:59		18:00 (2)	05:35		04:32	04:17	05:01	06:06	07:12			07:18		18:27	15:31	15:29	
	16:30	17:43	22	17:08 (4)	18:46	17	18:17 (2)	20:54		21:56	22:21	21:43	20:28	19:02			16:41		15:41	15:35	15:29	
29	08:27				06:56		18:59 (2)	05:32		04:31	04:18	05:03	06:08	07:14			07:20		18:29	15:31	15:29	
	16:33				19:48	20	19:19 (2)	20:57		21:58	22:21	21:41	20:25	18:59			16:39		15:39	15:36	15:29	
30	08:25				06:53		18:58 (2)	05:30		04:29	04:19	05:05	06:10	07:16			07:23		18:31	15:31	15:29	
	16:35				19:50	22	19:20 (2)	20:59		21:59	22:20	21:39	20:23	18:56			16:37		15:38	15:37	15:29	
31	08:23				06:50		18:58 (2)			04:28		05:07	06:12				07:25			15:38	15:30	15:29
	16:37				19:53	21	19:19 (2)			22:01		21:37	20:20				16:34				15:38	15:29
Potential sun hours	227	262			365			429		515	539	538	474	386			321		241		207	
Total, worst case			120		234			79						197			242					
Sun reduction			0.19		0.40			0.43						0.46			0.28					
Oper. time red.			1.00		1.00			1.00						1.00			1.00					
Wind dir. red.			1.00		1.00			1.00						1.00			1.00					
Total reduction			0.19		0.40			0.43						0.46			0.28					
Total, real			23		94			34						91			68					

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 22 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (467)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
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Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (501)
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 16:40	07:13 17:46	06:47 19:55	05:27 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
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 4 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (474)
 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 16:40	07:13 17:46	06:47 19:55	05:27 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
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27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:36	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (588)
 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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:51	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:21	06:27 20:00	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:14	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 19:46	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:50 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:01	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:19	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:36	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 6 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (493)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:22	06:27 20:00	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:14	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:50 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:19	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	07:16 20:23	07:23 18:56	07:31 16:36	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (473)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:51	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:14	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
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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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 19:46	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:50 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:01	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:19	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	07:16 20:23	07:23 18:56	07:23 16:36	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 8 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (587)
 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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:22	06:27 20:00	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:14	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:19	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Maja 9 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (500)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:51	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:36	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Malkalni - Shadow Receptor: 1.0 x 1.0 Azimuth: 3.1° Slope: 90.0° (482)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

	January	February	March	April	May	June	July	August	September	October	November	December		
1	09:00 15:39	08:21 16:40	07:13 17:46	16:57 (2) 17:16 (2)	06:48 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	16:57 (2) 17:18 (2)	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:35 15:36	
3	09:00 15:42	08:17 16:44	07:08 17:50	16:57 (2) 17:17 (2)	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35	
4	08:59 15:43	08:15 16:47	07:05 17:52	16:56 (2) 17:17 (2)	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34	
5	08:59 15:45	08:12 16:49	07:02 17:55	16:57 (2) 17:16 (2)	06:36 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	7 17:40 (2) 17:47 (2)	07:37 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	16:58 (2) 17:15 (2)	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	7 17:36 (2) 17:49 (2)	07:39 16:20	08:41 15:32
7	08:57 15:48	08:08 16:54	06:57 17:59	16:59 (2) 17:14 (2)	06:31 20:08	05:13 21:14	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	13 17:34 (2) 17:50 (2)	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	17:01 (2) 17:11 (2)	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	16 17:51 (2) 17:32 (2)	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	20 17:52 (2) 17:31 (2)	07:46 16:14	08:46 15:30	
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	04:30 22:12	05:28 21:14	06:34 19:52	07:38 18:28	21 17:52 (2) 17:30 (2)	07:48 16:12	08:47 15:30	
11	08:54 15:55	07:59 17:03	06:46 18:08	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	21 17:51 (2) 17:30 (2)	07:50 16:09	08:49 15:30	
12	08:53 15:56	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	20 17:50 (2) 17:30 (2)	07:53 16:07	08:50 15:29	
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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	18 17:48 (2) 17:30 (2)	07:55 16:05	08:51 15:29	
14	08:51 16:00	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 19:41	07:47 18:18	15 17:45 (2) 17:30 (2)	07:57 16:03	08:52 15:29	
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	11 17:41 (2) 17:32 (2)	07:59 16:02	08:53 15:29	
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	7 17:39 (2) 17:33 (2)	08:02 16:00	08:54 15:29	
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	3 17:36 (2) 17:30 (2)	08:04 15:58	08:55 15:29	
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	07:59 18:07	08:06 15:56	08:56 15:29	
19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:08 18:04	08:08 15:54	08:57 15:29	
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22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 18:07	08:15 15:49	08:59 15:30	
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 18:09	08:17 15:48	08:59 15:31	
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 18:04	08:19 15:46	09:00 15:31	
25	08:34 16:24	07:24 17:36	17:01 (2) 18:39	06:07 18:39	05:43 20:48	04:37 21:51	04:55 22:22	06:00 20:36	07:05 19:10	07:11 16:49	08:21 18:04	08:21 15:45	09:00 15:32	
26	08:32 16:26	07:21 17:39	17:00 (2) 18:42	06:04 18:42	05:40 20:50	04:35 21:52	04:57 22:21	06:02 20:33	07:07 19:07	07:14 16:46	08:23 18:04	08:23 15:43	09:00 15:33	
27	08:31 16:28	07:19 17:41	16:58 (2) 17:10 (2)	06:01 18:44	05:37 20:52	04:34 21:54	04:59 22:21	06:04 21:45	07:10 20:31	07:16 16:44	08:25 18:04	08:25 15:42	09:01 15:34	
28	08:29 16:30	07:16 17:43	16:57 (2) 17:13 (2)	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	06:06 21:43	07:12 20:28	07:18 16:41	08:27 18:04	08:27 15:41	09:01 15:34	
29	08:27 16:33			06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	06:08 21:41	07:14 20:25	07:20 18:59	08:29 18:04	08:29 15:39	09:01 15:35	
30	08:25 16:35			06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	06:10 21:39	07:16 20:23	07:23 18:56	08:31 18:04	08:31 15:38	09:01 15:37	
31	08:23 16:37			06:50 19:53		04:28 22:01		06:12 21:37	07:25 20:20	07:25 16:34	09:00 18:04	09:00 15:38		
Potential sun hours	227	262	365		429	515	539	538	474	386	321	241	207	
Total, worst case		41	142								191			
Sun reduction		0.19	0.40								0.28			
Oper. time red.		1.00	1.00								1.00			
Wind dir. red.		1.00	1.00								1.00			
Total reduction		0.19	0.40								0.28			
Total, real		8	57								54			

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Marstalu iela 6 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (681)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:11	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Naglinas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (594)
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 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
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13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:52 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:55 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	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	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:39 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:18	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:25	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Niedras - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (461)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:18	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:14 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Noras - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (502)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Ozolkalni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (799)
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	09:01 15:40	08:21 16:40	08:54 (6) 17:46	07:14 19:55	06:48 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:19 18:54		
2	09:00 15:41	08:19 16:42	08:51 (6) 17:48	07:11 19:57	06:45 21:04	05:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51		
3	09:00 15:42	08:17 16:45	08:50 (6) 17:51	07:08 19:57	06:42 21:00	05:23 22:06	04:25 22:19	05:13 21:31	06:19 20:12	07:23 18:48		
4	08:59 15:44	08:15 16:47	08:49 (6) 17:53	07:06 20:02	06:40 21:08	05:21 22:07	04:23 22:18	05:15 22:07	06:21 21:29	07:25 20:09		
5	08:59 15:45	08:13 16:49	08:49 (6) 17:55	07:03 20:04	06:37 21:10	05:18 22:09	04:22 22:18	05:17 22:09	06:23 21:27	07:27 20:06		
6	08:58 15:47	08:11 16:52	08:49 (6) 17:57	07:00 20:06	06:34 21:12	05:16 22:10	04:21 22:17	05:20 21:24	06:26 20:04	07:29 18:40		
7	08:58 15:48	08:08 16:54	08:49 (6) 18:00	06:57 20:08	06:31 21:15	05:13 22:11	04:20 22:16	05:22 21:22	06:28 20:01	07:32 18:37		
8	08:57 15:50	08:06 16:57	08:50 (6) 18:02	06:55 20:11	06:28 21:17	05:11 22:12	04:20 22:25	05:24 21:20	06:30 19:58	07:34 18:34		
9	08:56 15:51	08:04 16:59	08:49 (6) 18:04	06:52 20:13	06:26 21:19	05:09 22:13	04:19 22:14	05:26 21:17	06:32 19:55	07:36 18:31		
10	08:55 15:53	08:01 17:01	08:51 (6) 18:06	06:23 20:15	05:07 21:21	04:18 22:14	04:30 22:13	05:28 21:15	06:34 19:53	07:38 18:29		
11	08:54 15:55	07:59 17:04	08:51 (6) 18:09	06:20 20:17	05:04 21:23	04:17 22:15	05:30 22:12	06:36 21:12	07:40 19:50	07:40 18:26		
12	08:53 15:57	07:57 17:06	08:52 (6) 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		
13	08:52 15:59	07:54 17:09	08:53 (6) 18:13	06:15 20:22	05:00 21:27	04:16 22:17	05:34 22:09	06:40 21:07	07:45 19:44	07:45 18:21		
14	08:51 16:01	07:52 17:11	08:55 (6) 18:15	06:12 20:24	04:58 21:30	04:16 22:18	05:37 22:08	06:42 21:05	07:47 19:41	07:47 18:18		
15	08:50 16:03	07:50 17:13	09:00 (6) 18:18	06:35 20:26	06:09 21:32	04:16 22:19	05:39 22:06	06:45 21:02	07:49 19:38	07:49 18:15		
16	08:48 16:05	07:47 17:16	09:02 (6) 18:20	06:33 20:28	06:07 21:34	04:15 22:19	05:41 22:05	06:47 21:00	07:51 19:36	07:51 18:13		
17	08:47 16:07	07:45 17:18	09:04 (6) 18:22	06:30 20:31	06:04 21:36	04:15 22:20	05:43 22:04	06:49 20:57	07:54 19:33	07:54 18:10		
18	08:46 16:09	07:42 17:20	09:06 (6) 18:24	06:27 20:33	06:01 21:38	04:15 22:20	05:45 22:02	06:51 20:55	07:56 19:30	07:56 18:07		
19	08:44 16:11	07:40 17:23	09:08 (6) 18:27	06:24 20:35	05:59 21:40	04:15 22:21	05:47 22:00	06:53 20:52	07:58 19:27	07:58 18:05		
20	08:43 16:13	07:37 17:25	09:10 (6) 18:29	06:21 20:37	05:56 21:42	04:15 22:21	05:49 21:59	06:55 20:50	08:00 19:24	08:00 18:02		
21	08:41 16:15	07:35 17:27	09:12 (6) 18:31	06:19 20:39	05:53 21:44	04:15 22:22	05:51 21:57	06:57 20:47	08:03 19:22	08:03 17:59		
22	08:40 16:17	07:32 17:30	09:14 (6) 18:33	06:16 20:42	05:51 21:46	04:15 22:22	05:54 21:55	06:59 20:44	08:05 19:19	08:05 17:57		
23	08:38 16:19	07:29 17:32	09:16 (6) 18:35	06:13 20:44	05:48 21:47	04:15 22:22	05:56 21:53	07:01 20:42	08:07 19:16	08:07 17:54		
24	08:36 16:22	07:27 17:34	09:18 (6) 18:38	06:10 20:46	05:45 21:49	04:16 22:22	05:58 21:52	07:04 20:39	08:09 19:13	08:09 17:52		
25	08:35 16:24	07:24 17:37	09:20 (6) 18:40	06:07 20:48	05:43 21:51	04:16 22:22	06:00 21:50	07:06 20:36	07:12 19:10	07:12 16:49		
26	08:33 16:26	07:22 17:39	09:22 (6) 18:42	06:05 20:50	05:40 21:53	04:17 22:22	06:02 21:48	07:08 20:34	07:14 19:08	07:14 16:47		
27	08:31 16:28	07:19 17:41	09:24 (6) 18:44	06:02 20:53	05:38 21:55	04:17 22:22	06:04 21:46	07:10 20:31	07:16 19:05	07:16 16:44		
28	08:29 16:31	07:16 17:44	09:26 (6) 18:46	05:59 20:55	05:35 21:56	04:18 22:21	06:06 21:44	07:12 20:28	07:18 19:02	07:18 16:42		
29	08:27 16:33	09:00 (6) 09:04 (6)	09:28 (6) 18:48	05:56 20:57	05:33 21:58	04:18 22:21	06:09 21:42	07:14 20:26	07:21 18:59	07:21 16:39		
30	08:25 16:35	09:02 (6) 09:06 (6)	09:30 (6) 18:50	05:53 20:59	05:30 22:00	04:19 22:21	06:11 21:40	07:23 20:23	07:29 18:56	07:29 16:37		
31	08:23 16:38	09:04 (6) 09:08 (6)	09:32 (6) 18:52	05:51 21:03	05:28 22:01	04:20 22:22	06:13 21:38	07:25 20:20	07:25 16:34	07:25 16:34		
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case	24	278								71	235	
Sun reduction	0.11	0.19								0.28	0.08	
Oper. time red.	1.00	1.00								1.00	1.00	
Wind dir. red.	1.00	1.00								1.00	1.00	
Total reduction	0.11	0.19								0.28	0.08	
Total, real	3	54								20	18	

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Oš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (448)
 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 16:40		07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:02	03:20 22:20	02:15 21:35	01:10 20:17	00:05 18:53	00:00 17:30 (2)
2	09:00 15:40	08:19 16:42		07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	03:21 22:19	02:16 21:33	01:11 20:14	00:06 18:50	00:01 17:31 (2)
3	09:00 15:42	08:17 16:44		07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	03:22 22:19	02:17 21:31	01:12 20:12	00:07 18:48	00:02 17:32 (2)
4	08:59 15:43	08:15 16:47	16:06 (2)	07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:07	03:22 22:18	02:17 21:28	01:12 20:09	00:07 18:45	00:02 17:33 (2)
5	08:59 15:45	08:12 16:49	16:05 (2)	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	03:22 22:17	02:17 21:26	01:12 20:06	00:07 18:42	00:02 17:33 (2)
6	08:58 15:46	08:10 16:52	16:03 (2)	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	03:21 22:16	02:16 21:24	01:11 20:03	00:06 18:39	00:01 17:32 (2)
7	08:57 15:48	08:08 16:54	16:02 (2)	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:11	03:21 22:16	02:16 21:22	01:11 20:01	00:06 18:37	00:01 17:31 (2)
8	08:57 15:49	08:06 16:56	16:01 (2)	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	03:21 22:15	02:16 21:19	01:11 19:58	00:06 18:34	00:01 17:30 (2)
9	08:56 15:51	08:03 16:59	16:02 (2)	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	03:20 22:14	02:15 21:17	01:10 19:55	00:05 18:31	00:00 17:29 (2)
10	08:55 15:53	08:01 17:01	16:01 (2)	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14	03:20 22:12	02:15 21:14	01:10 19:52	00:05 18:28	00:00 17:28 (2)
11	08:54 15:55	07:59 17:03	16:01 (2)	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	03:20 22:11	02:15 21:12	01:09 19:49	00:04 18:26	00:00 17:27 (2)
12	08:53 15:57	07:56 17:06	16:00 (2)	06:43 18:11	06:17 20:19	05:02 21:25	04:17 22:16	03:20 22:10	02:15 21:10	01:08 19:47	00:03 18:23	00:00 17:26 (2)
13	08:52 15:58	07:54 17:08	16:01 (2)	06:41 18:13	06:14 20:21	05:00 21:27	04:16 22:17	03:20 22:09	02:15 21:07	01:07 19:44	00:02 18:20	00:00 17:25 (2)
14	08:51 16:00	07:52 17:11	16:01 (2)	06:38 18:15	06:12 20:24	04:58 21:29	04:16 22:18	03:20 22:08	02:15 21:05	01:06 19:41	00:01 18:18	00:00 17:24 (2)
15	08:49 16:02	07:49 17:13	16:01 (2)	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	03:20 22:06	02:15 21:02	01:05 19:38	00:01 18:15	00:00 17:23 (2)
16	08:48 16:04	07:47 17:15	16:02 (2)	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	03:20 22:05	02:15 21:00	01:04 19:35	00:01 18:12	00:00 17:22 (2)
17	08:47 16:06	07:44 17:18	16:02 (2)	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	03:20 22:03	02:15 20:57	01:03 19:33	00:01 18:10	00:00 17:21 (2)
18	08:45 16:08	07:42 17:20	16:04 (2)	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	03:20 22:02	02:15 20:55	01:02 19:30	00:01 18:07	00:00 17:20 (2)
19	08:44 16:10	07:39 17:22	16:05 (2)	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21	03:20 22:00	02:15 20:52	01:01 19:27	00:01 18:04	00:00 17:19 (2)
20	08:42 16:13	07:37 17:25	16:07 (2)	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	03:20 22:00	02:15 20:49	01:00 19:24	00:01 18:02	00:00 17:18 (2)
21	08:41 16:15	07:34 17:27	16:10 (2)	06:18 18:31	05:53 20:39	04:44 21:43	04:15 22:21	03:20 22:00	02:15 20:47	01:00 19:21	00:01 17:59	00:00 17:17 (2)
22	08:39 16:17	07:32 17:29	16:17 (2)	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	03:20 22:00	02:15 20:44	01:00 19:18	00:01 17:56	00:00 17:16 (2)
23	08:38 16:19	07:29 17:32	16:18 (2)	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:22	03:20 22:00	02:15 20:41	01:00 19:16	00:01 17:54	00:00 17:15 (2)
24	08:36 16:21	07:26 17:34	16:19 (2)	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	03:20 22:00	02:15 20:39	01:00 19:13	00:01 17:51	00:00 17:14 (2)
25	08:34 16:24	07:24 17:36	16:20 (2)	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:22	03:20 22:00	02:15 20:36	01:00 19:10	00:01 17:49	00:00 17:13 (2)
26	08:32 16:26	07:21 17:39	16:21 (2)	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:21	03:20 22:00	02:15 20:33	01:00 19:07	00:01 17:46	00:00 17:12 (2)
27	08:31 16:28	07:19 17:41	16:22 (2)	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:21	03:20 22:00	02:15 20:31	01:00 19:04	00:01 17:44	00:00 17:11 (2)
28	08:29 16:30	07:16 17:43	16:23 (2)	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	03:20 22:00	02:15 20:31	01:00 19:04	00:01 17:44	00:00 17:11 (2)
29	08:27 16:33		16:24 (2)	05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	03:20 22:00	02:15 20:31	01:00 19:04	00:01 17:44	00:00 17:11 (2)
30	08:25 16:35		16:25 (2)	05:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	03:20 22:00	02:15 20:31	01:00 19:04	00:01 17:44	00:00 17:11 (2)
31	08:23 16:37		16:26 (2)	05:50 19:53	05:27 22:01	04:28 22:01	04:20 22:01	03:20 22:00	02:15 20:31	01:00 19:04	00:01 17:44	00:00 17:11 (2)
Potential sun hours	227	262	343	429	515	539	538	474	386	321	241	207
Total, worst case			0.19							238	112	
Sun reduction			1.00							0.28	0.08	
Oper. time red.			1.00							1.00	1.00	
Wind dir. red.			1.00							1.00	1.00	
Total reduction			0.19							0.28	0.08	
Total, real			67							67	9	

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Pakalnini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (472)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	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	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:01	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	07:16 20:23	07:23 18:56	07:23 16:36	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Pastsili - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (790)
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	09:01	08:21	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:19	07:28	08:33
	15:40	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:18	18:54	16:32	15:38
2	09:00	08:19	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:43	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:36
3	09:00	08:17	07:08	06:42	05:23	04:25	04:22	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:51	20:00	21:06	22:06	22:19	21:31	20:12	18:48	16:28	15:35
4	08:59	08:15	07:06	06:40	05:21	04:24	04:23	05:16	06:21	07:25	07:35	08:38
	15:44	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:35
5	08:59	08:13	07:03	06:37	05:18	04:23	04:24	05:18	06:24	07:27	07:37	08:40
	15:45	16:50	17:55	20:04	21:10	22:08	22:18	21:27	20:06	18:42	16:23	15:34
6	08:58	08:11	07:00	06:34	05:16	04:22	04:25	05:20	06:26	07:29	07:39	08:42
	15:47	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:21	15:33
7	08:58	08:08	06:57	06:31	05:14	04:21	04:26	05:22	06:28	07:32	07:42	08:43
	15:48	16:54	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:19	15:32
8	08:57	08:06	06:55	06:29	05:11	04:20	04:28	05:24	06:30	07:34	07:44	08:45
	15:50	16:57	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:32
9	08:56	08:04	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	07:46	08:46
	15:52	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:07	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:02	18:07	20:15	21:21	22:14	22:13	21:15	19:53	18:29	16:12	15:31
11	08:54	07:59	06:47	06:20	05:05	04:18	04:32	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:18	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:30
13	08:52	07:54	06:41	06:15	05:00	04:17	04:35	05:35	06:40	07:45	07:55	08:51
	15:59	17:09	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:21	16:06	15:30
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:37	06:43	07:47	07:58	08:53
	16:01	17:11	18:16	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:50	06:35	06:09	04:56	04:16	04:38	05:39	06:45	07:49	08:00	08:54
	16:03	17:13	18:18	20:26	21:32	22:19	22:06	21:02	19:39	18:15	16:02	15:29
16	08:48	07:47	06:33	06:07	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:05	17:16	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:13	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:54	08:04	08:56
	16:07	17:18	18:22	20:31	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:43	05:45	06:51	07:56	08:06	08:56
	16:09	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:59	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:11	17:23	18:27	20:35	21:40	22:21	22:00	20:52	19:27	18:05	15:55	15:30
20	08:43	07:37	06:22	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:30
21	08:41	07:35	06:19	05:53	04:44	04:15	04:48	05:52	06:57	08:03	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:22	18:00	15:51	15:30
22	08:40	07:32	06:16	05:51	04:42	04:15	04:50	05:54	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:42	21:45	22:22	21:55	20:44	19:19	17:57	15:50	15:31
23	08:38	07:29	06:13	05:48	04:41	04:16	04:52	05:56	07:02	08:07	08:17	09:00
	16:20	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:46	04:39	04:16	04:54	05:58	07:04	08:09	08:19	09:00
	16:22	17:34	18:38	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:47	15:32
25	08:35	07:24	06:08	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:22	06:05	05:40	04:36	04:17	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:08	16:47	15:44	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:29	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:33	04:18	05:01	06:07	07:12	07:18	08:27	09:01
	16:31	17:44	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
29	08:27		06:56	05:33	04:31	04:19	05:03	06:09	07:14	07:21	08:29	09:01
	16:33		19:49	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:40	15:36
30	08:25		06:54	05:30	04:30	04:19	05:05	06:11	07:16	07:23	08:31	09:01
	16:36		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:39	15:37
31	08:23		06:51		04:28		05:07	06:13		07:25		09:01
	16:38		19:53		22:01		21:38	20:20		16:35		15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Pileniešis - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (779)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

		January	February	March	April	May	June	July	August	September	October	November	December
1	09:00	10:04 (1)	08:21	10:02 (1)	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28
	15:39	120	14:10 (6)	16:40	44	10:46 (1)	17:46	19:55	21:01	22:03	22:20	21:35	20:17
2	09:00		10:04 (1)	08:19		10:03 (1)	07:11	06:45	05:25	04:26	04:21	05:11	06:17
	15:41	117	14:10 (6)	16:42	44	10:47 (1)	17:48	19:57	21:04	22:04	22:20	21:33	20:15
3	09:00		10:04 (1)	08:17		10:04 (1)	07:08	06:42	05:23	04:24	04:22	05:13	06:19
	15:42	117	14:10 (6)	16:45	43	10:47 (1)	17:50	19:59	21:06	22:06	22:19	21:31	20:12
4	08:59		10:03 (1)	08:15		10:04 (1)	07:05	06:39	05:20	04:23	04:23	05:15	06:21
	15:43	116	14:10 (6)	16:47	42	10:46 (1)	17:53	20:02	21:08	22:07	22:18	21:29	20:09
5	08:59		10:03 (1)	08:13		10:05 (1)	07:03	06:37	05:18	04:22	04:24	05:17	06:23
	15:45	114	14:10 (6)	16:49	41	10:46 (1)	17:55	20:04	21:10	22:08	22:18	21:26	20:06
6	08:58		10:03 (1)	08:10		10:06 (1)	07:00	06:34	05:16	04:21	04:25	05:19	06:25
	15:46	114	14:11 (6)	16:52	40	10:46 (1)	17:57	20:06	21:12	22:10	22:17	21:24	20:04
7	08:58		10:02 (1)	08:08		10:06 (1)	06:57	06:31	05:13	04:20	04:26	05:22	06:28
	15:48	111	14:11 (6)	16:54	38	10:44 (1)	18:00	20:08	21:15	22:11	22:16	21:22	20:01
8	08:57		10:02 (1)	08:06		10:08 (1)	06:55	06:28	05:11	04:19	04:27	05:24	06:30
	15:50	106	14:11 (6)	16:56	36	10:44 (1)	18:02	20:10	21:17	22:12	22:15	21:19	19:58
9	08:56		10:02 (1)	08:04		10:09 (1)	06:52	06:26	05:09	04:19	04:29	05:26	06:32
	15:51	101	14:11 (6)	16:59	33	10:42 (1)	18:04	20:13	21:19	22:13	22:14	21:17	19:55
10	08:55		10:02 (1)	08:01		10:11 (1)	06:49	06:23	05:06	04:18	04:30	05:28	06:34
	15:53	95	14:11 (6)	17:01	30	10:41 (1)	18:06	20:15	21:21	22:14	22:13	21:15	19:52
11	08:54		10:02 (1)	07:59		10:12 (1)	06:46	06:20	05:04	04:17	04:31	05:30	06:36
	15:55	94	14:11 (6)	17:04	27	10:39 (1)	18:09	20:17	21:23	22:15	22:12	21:12	19:50
12	08:53		10:01 (1)	07:57		10:13 (1)	06:44	06:17	05:02	04:17	04:33	05:32	06:38
	15:57	92	14:10 (6)	17:06	24	10:37 (1)	18:07	20:19	21:25	22:16	22:13	21:19	19:47
13	08:52		10:02 (1)	07:54		10:17 (1)	06:41	06:15	05:00	04:16	04:34	05:34	06:40
	15:59	89	14:10 (6)	17:08	17	10:34 (1)	18:13	20:22	21:27	22:17	22:09	21:07	19:44
14	08:51		10:01 (1)	07:52		10:21 (1)	06:38	06:12	04:58	04:16	04:36	05:36	06:42
	16:00	86	14:08 (6)	17:11	8	10:29 (1)	18:15	20:24	21:29	22:18	22:08	21:05	19:41
15	08:50		10:01 (1)	07:49			06:35	06:09	04:56	04:15	04:37	05:39	06:44
	16:02	82	14:06 (6)	17:13			18:18	20:26	21:31	22:19	22:06	21:	

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Planci - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (575)
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 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:26 22:03	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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:20 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 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 15:43	08:15 16:47	07:05 17:53	06:39 20:02	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:17	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:22	08:40 15:33
6	08:58 15:46	08:10 16:51	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:08 21:19	04:18 22:13	04:28 22:14	05:25 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:47 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:32 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:29	04:15 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:03	08:52 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:55 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:01	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	08:04 15:58	08:55 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:47 21:39	04:14 22:21	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	08:43 16:12	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:14 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:18	08:05 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:33
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:40	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:25	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 21:59	04:19 22:21	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:36	08:31 15:38	09:01 15:36
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Plumes - Shadow Receptor: 1.0 x 1.0 Azimuth: 3.1° Slope: 90.0° (490)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	09:00 15:39	08:21 16:40	07:13 17:46	17:06 (2) 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	17:05 (2) 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:35 15:36	
3	09:00 15:42	08:17 16:44	07:08 17:50	17:04 (2) 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	17:45 (2) 17:55 (2)	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	17:03 (2) 19:59	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	17:42 (2) 17:57 (2)	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	17:03 (2) 19:59	05:18 21:10	04:22 22:08	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	17:41 (2) 17:58 (2)	07:37 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	17:03 (2) 19:59	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	17:40 (2) 17:59 (2)	07:39 16:20	08:41 15:32
7	08:57 15:48	08:08 16:54	06:57 17:59	17:03 (2) 19:59	05:13 21:14	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	17:39 (2) 17:59 (2)	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	17:04 (2) 19:59	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	17:38 (2) 17:59 (2)	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	17:04 (2) 19:59	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	17:38 (2) 17:59 (2)	07:46 16:14	08:46 15:31
10	08:55 15:53	08:01 17:01	06:49 18:06	17:06 (2) 19:59	05:06 21:21	04:18 22:14	04:30 22:12	05:28 21:14	06:34 19:52	07:38 18:28	17:38 (2) 17:56 (2)	07:48 16:12	08:47 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	17:10 (2) 19:59	05:04 21:23	04:17 22:15	04:31 22:11	05:30 21:12	06:36 19:49	07:40 18:26	17:38 (2) 17:53 (2)	07:50 16:09	08:49 15:30
12	08:53 15:56	07:56 17:06	06:43 18:11	17:15 (2) 19:59	05:02 21:25	04:17 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	17:38 (2) 17:50 (2)	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	17:15 (2) 19:59	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	17:39 (2) 17:48 (2)	07:55 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	17:15 (2) 19:59	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:47 18:18	17:40 (2) 17:45 (2)	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	17:15 (2) 19:59	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	17:45 (2) 17:50 (2)	07:59 16:02	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	17:15 (2) 19:59	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	17:50 (2) 17:55 (2)	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	17:15 (2) 19:59	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	17:55 (2) 17:58 (2)	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	17:15 (2) 19:59	04:49 21:37	04:15 22:20	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	17:55 (2) 17:58 (2)	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	06:24 18:26	17:15 (2) 19:59	04:48 21:39	04:15 22:20	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	17:55 (2) 17:58 (2)	08:08 15:54	08:57 15:29
20	08:42 16:13	07:37 17:25	06:21 18:28	17:15 (2) 19:59	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	17:55 (2) 17:58 (2)	08:10 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	17:15 (2) 19:59	04:44 21:43	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	17:55 (2) 17:58 (2)	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	17:15 (2) 19:59	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	17:55 (2) 17:58 (2)	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	17:15 (2) 19:59	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	17:55 (2) 17:58 (2)	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	17:15 (2) 19:59	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	17:55 (2) 17:58 (2)	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	17:15 (2) 19:59	04:37 21:51	04:16 22:22	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	17:55 (2) 17:58 (2)	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	17:15 (2) 19:59	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:14 16:46	17:55 (2) 17:58 (2)	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	17:15 (2) 19:59	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	17:55 (2) 17:58 (2)	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	17:15 (2) 19:59	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	17:55 (2) 17:58 (2)	08:27 15:41	09:01 15:34
29	08:27 16:33	07:13 17:43	05:56 19:48	17:15 (2) 19:59	04:30 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	17:55 (2) 17:58 (2)	08:29 15:39	09:01 15:35
30	08:25 16:35	07:11 17:43	05:53 19:50	17:15 (2) 19:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	17:55 (2) 17:58 (2)	08:31 15:38	09:01 15:37
31	08:23 16:37	07:09 17:43	05:50 19:53	17:15 (2) 19:59	04:28 22:01	04:20 22:21	05:07 21:37	06:12 20:20	07:25 16:34	07:32 16:31	17:55 (2) 17:58 (2)	09:00 15:38	09:00 15:38
Potential sun hours	227	262	365		429	515	539	538	474	386	321	241	207
Total, worst case		9	170								182		
Sun reduction		0.19	0.40								0.28		
Oper. time red.		1.00	1.00								1.00		
Wind dir. red.		1.00	1.00								1.00		
Total reduction		0.19	0.40								0.28		
Total, real		2	68								51		

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Plumites - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (780)
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	09:01	08:21	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:19	07:28	08:33
	15:40	16:40	17:46	19:55	21:02	22:03	22:20	21:35	20:18	18:54	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:36
3	09:00	08:17	07:08	06:42	05:23	04:25	04:22	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:51	20:00	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:06	06:40	05:21	04:23	04:23	05:15	06:21	07:25	07:35	08:38
	15:44	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:18	06:24	07:27	07:37	08:40
	15:45	16:50	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:34
6	08:58	08:11	07:00	06:34	05:16	04:21	04:25	05:20	06:26	07:29	07:39	08:42
	15:47	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:21	15:33
7	08:58	08:08	06:57	06:31	05:14	04:21	04:26	05:22	06:28	07:32	07:42	08:43
	15:48	16:54	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:20	04:27	05:24	06:30	07:34	07:44	08:45
	15:50	16:57	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	07:46	08:46
	15:52	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:07	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:07	20:15	21:21	22:14	22:13	21:15	19:53	18:29	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:18	04:32	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:18	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:30
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:59	17:09	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:21	16:06	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:37	06:43	07:47	07:58	08:53
	16:01	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:50	06:35	06:09	04:56	04:16	04:38	05:39	06:45	07:49	08:00	08:54
	16:03	17:13	18:18	20:26	21:32	22:19	22:06	21:02	19:39	18:15	16:02	15:29
16	08:48	07:47	06:33	06:07	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:05	17:16	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:13	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:54	08:04	08:56
	16:07	17:18	18:22	20:31	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:43	05:45	06:51	07:56	08:06	08:57
	16:09	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:59	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:11	17:23	18:27	20:35	21:40	22:21	22:00	20:52	19:27	18:05	15:55	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:30
21	08:41	07:35	06:19	05:53	04:44	04:15	04:48	05:52	06:57	08:03	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:22	17:59	15:51	15:30
22	08:40	07:32	06:16	05:51	04:42	04:15	04:50	05:54	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:42	21:46	22:22	21:55	20:44	19:19	17:57	15:50	15:31
23	08:38	07:29	06:13	05:48	04:41	04:15	04:52	05:56	07:02	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:46	04:39	04:16	04:53	05:58	07:04	08:09	08:19	09:00
	16:22	17:34	18:38	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:46	15:32
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:22	06:05	05:40	04:36	04:17	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:08	16:47	15:44	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:29	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:33	04:18	05:01	06:06	07:12	07:18	08:27	09:01
	16:31	17:44	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
29	08:27		06:56	05:33	04:31	04:18	05:03	06:09	07:14	07:21	08:29	09:01
	16:33		19:49	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:40	15:36
30	08:25		06:53	05:30	04:30	04:19	05:05	06:11	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:39	15:37
31	08:23		06:51		04:28		05:07	06:13		07:25		09:01
	16:38		19:53		22:01		21:38	20:20		16:35		15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 13 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (617)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
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	15:55	17:03	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:56	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
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	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
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	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
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25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 15 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (739)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 17 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (618)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
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20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 19 (94010010924001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (609)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 19 (94010010924003) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (610) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
0.80 1.82 4.75 6.09 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:19	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 21 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (638)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 21A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (630) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
0.80 1.82 4.75 6.09 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:09	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 21B - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (613)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 23 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (633)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Poruka iela 23A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (636)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
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22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Priedulaji - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (442)
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 15:40	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02	04:20 22:19	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:32 15:37
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	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:29 16:30	08:34 15:36
3	08:59 15:42	08:16 16:45	07:08 17:50	06:42 19:59	05:23 21:05	04:25 22:05	04:22 22:18	05:13 21:30	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
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11	08:54 15:55	07:59 17:04	06:46 18:08	06:20 20:17	05:04 21:23	04:18 22:15	04:32 22:11	05:30 21:12	06:36 19:49	07:40 18:26	07:50 16:10	08:48 15:30
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17	08:46 16:07	07:44 17:18	06:29 18:22	06:04 20:30	04:52 21:35	04:15 22:19	04:41 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
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	04:43 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:34	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:53	08:57 15:30
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	04:48 21:56	05:51 20:47	06:57 19:21	08:02 17:59	08:12 15:51	08:58 15:30
22	08:39 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:50 21:55	05:53 20:44	06:59 19:18	08:04 17:57	08:14 15:49	08:59 15:31
23	08:37 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:41 21:47	04:16 22:21	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	08:36 16:22	07:26 17:34	06:10 18:37	05:45 20:45	04:39 21:49	04:16 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	08:59 15:32
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:50	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:36 21:52	04:17 22:21	04:57 21:47	06:02 20:33	07:08 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:30 16:28	07:18 17:41	06:02 18:44	05:38 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:28 16:31	07:16 17:43	05:59 18:46	05:35 20:54	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	09:00 15:35
29	08:27 16:33		06:56 19:48	05:33 20:57	04:31 21:57	04:18 22:20	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:40	09:00 15:36
30	08:25 16:35		06:53 19:50	05:30 20:59	04:30 21:59	04:19 22:20	05:05 21:39	06:10 20:22	07:16 18:56	07:23 16:37	08:31 15:38	09:00 15:37
31	08:23 16:38		06:50 19:53		04:28 22:01		05:07 21:37	06:13 20:20		07:25 16:34		09:00 15:38
Potential sun hours	228	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Pumpura jela 10A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (668)
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	09:01	08:21	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:42	21:46	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Purva iela 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (529)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	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	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Purva iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (523)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	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	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Purva iela 9 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (524)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:23	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:24	06:30	07:34	07:44	08:45
	15:50	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:19	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
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	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:11	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:48	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
29	08:27		06:56	05:33	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:36
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:37	20:20		16:34		15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Pinas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (481)
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 16:40		07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:02	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	
2	09:00 15:40	08:19 16:42		07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	
3	09:00 15:42	08:17 16:44		07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	
4	08:59 15:43	08:15 16:47		07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	
5	08:59 15:45	08:12 16:49		07:03 17:55	06:36 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	
6	08:58 15:46	08:10 16:52		07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	
8	08:57 15:49	08:06 16:56		06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	
9	08:56 15:51	08:03 16:59		06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	
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	04:30 22:12	05:28 21:14	06:34 19:52	07:38 18:28	
11	08:54 15:55	07:59 17:03		06:46 18:08	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	
12	08:53 15:56	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	
13	08:52 15:58	07:54 17:08		06:41 18:13	06:14 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	
14	08:51 16:00	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	
15	08:49 16:02	07:49 17:13		06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	
16	08:48 16:04	07:47 17:15		06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	
17	08:47 16:06	07:44 17:18		06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	
18	08:45 16:08	07:42 17:20		06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	
19	08:44 16:10	07:39 17:22		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	07:58 18:04	
20	08:42 16:13	07:37 17:25		06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	
22	08:39 16:17	07:32 17:29		06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	
23	08:38 16:19	07:29 17:32		06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	
24	08:36 16:21	07:26 17:34		06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	
25	08:34 16:24	07:24 17:36		06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	
26	08:32 16:26	07:21 17:39		06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:21	04:57 21:47	06:02 20:33	07:08 19:07	07:14 16:46	
27	08:31 16:28	07:19 17:41		06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	
28	08:29 16:30	07:16 17:43		05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	
29	08:27 16:33			05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	
30	08:25 16:35			05:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	
31	08:23 16:37			05:50 19:53		04:28 22:01		05:07 21:37	06:13 20:20		07:25 16:34	
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case		283								235	52	
Sun reduction		0.19								0.28	0.08	
Oper. time red.		1.00								1.00	1.00	
Wind dir. red.		1.00								1.00	1.00	
Total reduction		0.19								0.28	0.08	
Total, real		55								66	4	

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 37 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (600)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:23	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:03	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:56	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:38	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:36
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 41 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (703)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 51 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (694)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 53 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (760)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 55 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (723)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 57 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (704)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 58 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (648)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
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	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
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	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
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	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
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	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
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	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
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	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
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31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 59 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (705)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:34
29	08:27		06:56	05:33	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 60 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (651)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 61 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (715)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
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17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 62 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (662)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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14	08:51 16:00	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	08:53 15:29
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19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 64 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (645)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
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Table layout: For each day in each month the following matrix apply

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 66 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (647)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 72 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (652)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
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	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
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	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
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8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:24	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
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	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
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	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
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	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
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	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
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	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
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23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
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30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
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	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 74 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (661)
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
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 76 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (660)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 78 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (759)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 20:00	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:11 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:40	07:39 16:20	08:42 15:33
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 78A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (679)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
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30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 80 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (653)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
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18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:11	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 82 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (682)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
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20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Raina iela 84 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (646)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:11	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Riekstini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (495)
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 15:40	08:21 16:40 08:19 16:42	07:13 17:46 07:11 17:48	06:48 19:55 06:45 19:57	05:27 21:01 05:25 21:03	04:27 22:02 04:25 22:04	04:20 21:35 04:21 21:33	05:09 20:17 05:11 20:14	06:15 18:53 06:17 18:50	07:18 16:32 07:20 16:30	07:27 16:32 07:30 16:36	08:33 15:37 08:35 15:36
2	09:00 15:40	08:21 16:42	07:13 17:48	06:48 19:57	05:27 21:03	04:27 22:04	04:20 21:33	05:09 20:14	06:15 18:50	07:18 16:30	07:27 16:36	08:33 15:36
3	09:00 15:42	14:55 (4) 16:44	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 21:31	05:13 20:12	06:19 18:48	07:23 16:27	08:36 15:35
4	08:59 15:43	14:55 (4) 16:47	08:15 16:47	07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:07	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	14:54 (4) 16:49	08:12 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	14:54 (4) 16:52	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
7	08:57 15:48	14:54 (4) 16:54	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:11	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	14:54 (4) 16:56	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	14:55 (4) 16:59	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
10	08:55 15:53	14:55 (4) 17:01	08:01 17:01	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14	05:28 21:14	06:34 19:52	07:38 18:28	07:48 16:12	08:47 15:30
11	08:54 15:55	14:54 (4) 17:03	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	05:30 21:12	06:36 19:49	07:40 18:26	07:50 16:09	08:49 15:30
12	08:53 15:57	14:55 (4) 17:06	07:56 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:17 22:16	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	14:55 (4) 17:08	07:54 17:08	06:41 18:13	06:14 20:21	05:00 21:27	04:16 22:17	05:34 21:07	06:40 19:44	07:44 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	14:55 (4) 17:11	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:29	04:16 22:18	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:03	08:52 15:29
15	08:49 16:02	14:55 (4) 17:13	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:02	08:53 15:29
16	08:48 16:04	14:56 (4) 17:15	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	05:40 21:00	06:46 19:35	07:51 18:12	08:02 17:16	08:54 15:29
17	08:47 16:06	14:56 (4) 17:18	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	05:43 21:03	06:48 19:33	07:53 18:10	08:04 17:17	08:55 15:29
18	08:45 16:08	14:56 (4) 17:20	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	05:45 21:02	06:51 19:30	07:55 18:07	08:06 17:18	08:56 15:29
19	08:44 16:10	14:56 (4) 17:22	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21	05:47 21:02	06:53 19:27	07:58 18:04	08:08 17:18	08:57 15:29
20	08:42 16:13	14:58 (4) 17:25	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	05:49 21:58	06:55 19:24	08:00 18:02	08:10 17:18	08:58 15:29
21	08:41 16:15	14:58 (4) 17:27	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:43	04:15 22:21	05:47 21:57	06:57 19:21	08:02 17:59	08:13 17:19	08:58 15:30
22	08:39 16:17	14:59 (4) 17:29	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	05:53 21:55	06:59 19:18	08:04 17:56	08:15 17:18	08:59 15:30
23	08:38 16:19	15:00 (4) 17:32	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:22	05:55 21:53	07:01 19:16	08:07 17:54	08:17 17:18	08:59 15:31
24	08:36 16:21	15:01 (4) 17:34	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	05:58 21:51	07:03 19:13	08:09 17:51	08:19 17:17	09:00 15:31
25	08:34 16:24	15:02 (4) 17:36	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:22	06:00 21:49	07:05 19:10	07:11 16:49	08:21 16:15	09:00 15:32
26	08:32 16:26	15:04 (4) 17:39	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:21	06:02 21:47	07:08 19:07	07:14 16:46	08:23 16:12	09:00 15:33
27	08:31 16:28	15:05 (4) 17:41	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:21	06:04 21:45	07:10 19:04	07:16 16:44	08:25 16:10	09:01 15:34
28	08:29 16:30	15:09 (4) 17:43	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	06:06 21:43	07:12 19:02	07:18 16:41	08:27 16:06	09:01 15:34
29	08:27 16:33			06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	06:08 21:41	07:14 18:59	07:20 16:39	08:29 16:04	09:01 15:35
30	08:25 16:35			06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	06:10 21:39	07:16 18:56	07:23 16:37	08:31 16:01	09:01 15:37
31	08:23 16:37			06:50 19:53	05:28 22:01	04:28 22:01	05:07 21:37	06:13 20:20	07:25 16:34	08:31 16:01	08:31 15:38	09:00 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case	392	293								298	317	78
Sun reduction	0.11	0.19								0.28	0.08	0.06
Oper. time red.	1.00	1.00								1.00	1.00	1.00
Wind dir. red.	1.00	1.00								1.00	1.00	1.00
Total reduction	0.11	0.19								0.28	0.08	0.06
Total, real	43	57								84	25	5

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

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

Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Ritas - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (452)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

	January		February		March		April		May		June		July		August		September		October		November		December	
1	09:00		14:33 (4)	08:21		07:13	06:48		05:27	04:27	04:20		05:09	06:15	07:18		07:27		15:39 (2)	08:33		14:18 (4)		
	15:39	20	14:53 (4)	16:40		17:46	19:55		21:01	22:02	22:20		21:35	20:17	18:53		16:32	17	15:56 (2)	15:37	23	14:41 (4)		
2	09:00		14:53 (4)	08:19		07:11	06:45		05:25	04:25	04:21		05:11	06:17	07:20		07:30		15:41 (2)	08:35		14:18 (4)		
	15:40	21	14:54 (4)	16:42		17:48	19:57		21:03	22:04	22:19		21:33	20:14	18:50		16:29	13	15:54 (2)	15:36	24	14:42 (4)		
3	09:00		14:34 (4)	08:17		07:08	06:42		05:23	04:24	04:21		05:13	06:19	07:23		07:32		15:42 (2)	08:36		14:19 (4)		
	15:42	22	14:56 (4)	16:44		17:50	19:59		21:06	22:05	22:19		21:31	20:12	18:48		16:27	9	15:51 (2)	15:35	23	14:42 (4)		
4	08:59		14:34 (4)	08:15		07:05	06:39		05:20	04:23	04:22		05:15	06:21	07:25		07:34		15:44 (2)	08:38		14:19 (4)		
	15:43	22	14:56 (4)	16:47		17:53	20:01		21:08	22:07	22:18		21:28	20:09	18:45		16:25	5	15:49 (2)	15:34	23	14:42 (4)		
5	08:59		14:34 (4)	08:12		07:03	06:36		05:18	04:22	04:24		05:17	06:23	07:27		07:37			08:40		14:20 (4)		
	15:45	23	14:57 (4)	16:49		17:55	20:04		21:10	22:08	22:17		21:26	20:06	18:42		16:23			15:33	23	14:43 (4)		
6	08:58		14:34 (4)	08:10		07:00	06:34		05:15	04:21	04:25		05:19	06:25	07:29		07:39			08:41		14:20 (4)		
	15:46	23	14:57 (4)	16:52		17:57	20:06		21:12	22:09	22:16		21:24	20:03	18:39		16:20			15:32	23	14:43 (4)		
7	08:57		14:35 (4)	08:08			06:31		05:13	04:20	04:26		05:21	06:27	07:31		07:41			08:43		14:21 (4)		
	15:48	23	14:58 (4)	16:54	5	16:19 (2)	17:59		20:08	21:14	22:11		22:16	21:22	20:01		16:18			15:32	23	14:44 (4)		
8	08:57		14:35 (4)	08:06		16:12 (2)	06:54		06:28	05:11	04:19		04:27	05:23	06:29		07:43			08:44		14:22 (4)		
	15:49	23	14:58 (4)	16:56	10	16:22 (2)	18:02		20:10	21:16	22:12		22:15	21:19	19:58		16:16			15:31	22	14:44 (4)		
9	08:56		14:36 (4)	08:03		16:11 (2)	06:52		06:25	05:09	04:18		04:28	05:26	06:32		07:46			08:46		14:22 (4)		
	15:51	23	14:59 (4)	16:59	14	16:25 (2)	18:04		20:12	21:19	22:13		22:14	21:17	19:55		16:14			15:31	22	14:44 (4)		
10	08:55		14:36 (4)	08:01		06:23	05:06		04:18	04:30	05:28		06:34	07:38			07:48			08:47		14:23 (4)		
	15:53	23	14:59 (4)	17:01	18	16:27 (2)	18:06		20:15	21:21	22:14		22:12	21:14	19:52		16:12			15:30	21	14:44 (4)		
11	08:54		14:36 (4)	07:59		06:09 (2)	06:46		06:20	05:04	04:17		04:31	05:30	0									

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rozes - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (791)
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	09:01 15:40	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:38
2	09:00 15:41	08:19 16:43	07:11 17:48	06:45 19:57	05:26 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:37
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	05:23 21:06	04:25 22:06	04:22 22:19	05:14 21:31	06:19 20:12	07:23 18:48	07:32 16:28	08:37 15:36
4	08:59 15:44	08:15 16:47	07:06 17:53	06:40 20:02	05:21 21:08	04:24 22:07	04:23 22:18	05:16 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:35
5	08:59 15:45	08:13 16:50	07:03 17:55	06:37 20:04	05:18 21:10	04:23 22:08	04:24 22:18	05:18 21:27	06:24 20:07	07:27 18:43	07:37 16:23	08:40 15:34
6	08:58 15:47	08:11 16:52	07:00 17:58	06:34 20:06	05:16 21:12	04:22 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:14 21:15	04:21 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:19	08:43 15:32
8	08:57 15:50	08:06 16:57	06:55 18:02	06:29 20:11	05:11 21:17	04:20 22:12	04:28 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:32
9	08:56 15:52	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 18:32	07:46 16:14	08:46 15:31
10	08:55 15:53	08:01 17:02	06:49 18:07	06:23 20:15	05:07 21:21	04:18 22:14	04:30 22:13	05:28 21:15	06:34 19:53	07:38 18:29	07:48 16:12	08:48 15:31
11	08:54 15:55	07:59 17:04	06:47 18:09	06:20 20:17	05:05 21:23	04:18 22:15	04:32 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:18 20:19	05:02 21:25	04:17 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:43 18:23	07:53 16:08	08:50 15:30
13	08:52 15:59	07:54 17:09	06:41 18:13	06:15 20:22	05:00 21:27	04:17 22:17	04:35 22:09	05:35 21:07	06:40 19:44	07:45 18:21	07:55 16:06	08:51 15:30
14	08:51 16:01	07:52 17:11	06:38 18:16	06:12 20:24	04:58 21:29	04:16 22:18	04:36 22:08	05:37 21:05	06:43 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:03	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:16 22:19	04:38 22:06	05:39 21:02	06:45 19:39	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:05	07:47 17:16	06:33 18:20	06:07 20:28	04:54 21:34	04:16 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:55 15:29
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:21	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:43 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:57	08:56 15:29
19	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:55	08:57 15:30
20	08:43 16:13	07:37 17:25	06:22 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:50 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:35 17:28	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:52 20:47	06:57 19:22	08:03 18:00	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:43 21:45	04:15 22:22	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	08:38 16:20	07:29 17:32	06:13 18:35	05:48 20:44	04:41 21:47	04:16 22:22	04:52 21:53	05:56 20:42	07:02 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:35	06:10 18:38	05:46 20:46	04:39 21:49	04:16 22:22	04:54 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:47	09:00 15:32
25	08:35 16:24	07:24 17:37	06:08 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:56 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:33
26	08:33 16:26	07:22 17:39	06:05 18:42	05:41 20:50	04:36 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:23 15:44	09:01 15:33
27	08:31 16:29	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:33 21:56	04:18 22:21	05:01 21:44	06:07 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:19 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:36		06:54 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:39	09:01 15:37
31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:35		09:01 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rubeni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (454)
 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	17:04 (12) 17:16 (12)	06:48 19:55	18:40 (4) 21:01
2	09:00 15:41	08:19 16:42	07:11 17:48	17:03 (12) 17:18 (12)	06:45 19:57	24 20:23 (2)
3	08:59 15:42	08:17 16:44	07:08 17:50	17:02 (12) 17:20 (12)	06:42 19:59	23 20:22 (2)
4	08:59 15:43	08:14 16:47	16:09 (11) 17:53	17:01 (12) 17:23 (12)	06:39 20:01	22 20:22 (2)
5	08:58 15:45	08:12 16:49	16:08 (11) 17:55	17:01 (12) 17:23 (12)	06:36 20:04	22 20:21 (2)
6	08:58 15:46	08:10 16:52	16:06 (11) 17:57	17:02 (12) 17:24 (12)	06:34 20:06	20 20:21 (2)
7	08:57 15:48	08:08 16:54	16:05 (11) 17:59	17:02 (12) 17:23 (12)	06:31 20:08	18 20:19 (2)
8	08:56 15:50	08:06 16:56	16:03 (11) 18:02	17:02 (12) 17:22 (12)	06:28 20:10	16 20:18 (2)
9	08:56 15:51	08:03 16:59	16:03 (11) 18:04	17:03 (12) 17:20 (12)	06:25 20:12	13 20:17 (2)
10	08:55 15:53	08:01 17:01	16:02 (11) 18:06	17:04 (12) 17:18 (12)	06:23 20:15	9 20:15 (2)
11	08:54 15:55	07:59 17:03	16:02 (11) 18:08	17:07 (12) 17:17 (12)	06:20 20:17	20:15 (2) 22:13
12	08:53 15:57	07:56 17:06	16:02 (11) 18:11	17:02 (12) 17:17 (12)	06:17 20:19	20:15 (2) 22:13
13	08:52 15:58	07:54 17:08	16:02 (11) 18:13	17:02 (12) 20:21	06:14 20:21	20:15 (2) 22:13
14	08:50 16:00	07:52 17:11	16:02 (11) 18:15	17:02 (12) 20:23	06:12 20:23	20:15 (2) 22:13
15	08:49 16:02	07:49 17:13	16:02 (11) 18:17	17:02 (12) 20:26	06:09 20:26	20:15 (2) 22:13
16	08:48 16:04	07:47 17:15	16:03 (11) 18:20	17:02 (12) 20:28	06:06 20:28	20:15 (2) 22:13
17	08:47 16:06	07:44 17:18	16:03 (11) 18:22	17:02 (12) 20:30	06:04 20:30	20:15 (2) 22:13
18	08:45 16:08	07:42 17:20	16:03 (11) 18:24	17:02 (12) 20:32	06:01 20:32	20:15 (2) 22:13
19	08:44 16:11	07:39 17:22	16:05 (11) 18:26	17:02 (12) 20:35	05:58 20:35	20:15 (2) 22:13
20	08:42 16:13	07:37 17:25	16:05 (11) 18:28	17:53 (4) 17:59 (4)	05:56 20:37	20:15 (2) 22:13
21	08:41 16:15	07:34 17:27	16:07 (11) 18:31	17:49 (4) 18:01 (4)	05:53 20:39	20:15 (2) 22:13
22	08:39 16:17	07:32 17:29	16:10 (11) 18:33	17:46 (4) 18:03 (4)	05:50 20:41	20:15 (2) 22:13
23	08:38 16:19	07:29 17:32	06:13 18:35	17:46 (4) 18:06 (4)	05:48 20:43	20:15 (2) 22:13
24	08:36 16:21	07:26 17:34	06:10 18:37	17:44 (4) 18:04 (4)	05:45 20:46	20:15 (2) 22:13
25	08:34 16:24	07:24 17:36	06:07 18:39	17:43 (4) 18:09 (4)	05:43 20:48	20:15 (2) 22:13
26	08:32 16:26	07:21 17:39	06:04 18:42	17:42 (4) 18:09 (4)	05:40 20:50	20:15 (2) 22:13
27	08:31 16:28	07:19 17:41	17:06 (12) 18:44	17:41 (4) 18:09 (4)	05:37 20:52	20:15 (2) 22:13
28	08:29 16:30	07:16 17:43	17:04 (12) 18:46	17:41 (4) 18:10 (4)	05:35 20:54	20:15 (2) 22:13
29	08:27 16:33		06:56 19:48	18:40 (4) 19:09 (4)	05:32 20:57	20:15 (2) 22:13
30	08:25 16:35		06:53 19:50	18:40 (4) 19:08 (4)	05:30 20:59	20:15 (2) 22:13
31	08:23 16:37		06:50 19:53	18:40 (4) 19:08 (4)	04:28 22:01	20:15 (2) 22:13
Potential sun hours	227	262	365	429	515	539
Total, worst case		389	467	556	641	677
Sun reduction		0.19	0.40	0.43	0.58	0.58
Oper. time red.		1.00	1.00	1.00	1.00	1.00
Wind dir. red.		1.00	1.00	1.00	1.00	1.00
Total reduction		0.19	0.40	0.43	0.58	0.58
Total, real		76	188	256	313	321

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rubeni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (454)
 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	15:32 (11) 15:56 (11)
2	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	17:46 (12) 17:53 (12)	15:33 (11) 15:54 (11)
3	04:22 22:19	05:13 21:31	20:18 (2) 20:23 (2)	06:19 20:12	07:22 17:56 (12)	15:33 (11) 15:51 (11)
4	04:23 22:18	05:15 21:28	20:15 (2) 20:26 (2)	06:21 20:09	07:25 17:57 (12)	15:35 (11) 15:49 (11)
5	04:24 22:17	05:17 21:26	20:13 (2) 20:28 (2)	06:23 20:06	07:27 17:58 (12)	15:35 (11) 15:46 (11)
6	04:25 22:16	05:19 21:24	20:12 (2) 20:29 (2)	06:25 20:03	07:29 18:43 (4)	15:38 (11) 15:44 (11)
7	04:26 22:15	05:21 21:22	20:11 (2) 20:30 (2)	06:27 20:01	07:31 18:40 (4)	15:41 (11) 15:42 (11)
8	04:27 22:14	05:23 21:19	20:10 (2) 20:31 (2)	06:29 19:58	07:33 18:38 (4)	15:44 (11) 15:31
9	04:28 22:13	05:26 21:17	20:10 (2) 20:31 (2)	06:32 19:55	07:36 18:36 (4)	15:46 (11) 15:31
10	04:30 22:12	05:28 21:14	20:09 (2) 20:32 (2)	06:34 19:52	07:38 18:34 (4)	15:48 (11) 15:30
11	04:31 22:11	05:30 21:12	20:09 (2) 20:32 (2)	06:36 19:49	07:40 18:33 (4)	15:50 (11) 15:30
12	04:33 22:10	05:32 21:10	20:07 (2) 20:31 (2)	06:38 19:47	07:42 18:32 (4)	15:53 (11) 15:29
13	04:34 22:09	05:34 21:07	20:07 (2) 20:31 (2)	06:40 19:44	07:44 18:30 (4)	15:55 (11) 15:29
14	04:36 22:07	05:36 21:05	20:07 (2) 20:30 (2)	06:42 19:41	07:46 18:31 (4)	15:57 (11) 15:29
15	04:37 22:06	05:38 21:02	20:07 (2) 20:28 (2)	06:44 19:38	07:49 18:30 (4)	15:59 (11) 15:29
16	04:39 22:05	05:40 21:00	20:07 (2) 20:26 (2)	06:46 19:35	07:51 18:30 (4)	16:02 (11) 15:29
17	04:41 22:03	05:43 20:57	20:08 (2) 20:23 (2)	06:48 19:32	07:53 18:30 (4)	16:04 (11) 15:29
18	04:42 22:01	05:45 20:54	20:08 (2) 20:21 (2)	06:51 19:30	07:55 18:30 (4)	16:06 (11) 15:29
19	04:44 22:00	05:47 20:52	20:09 (2) 20:19 (2)	06:53 19:27	07:58 18:30 (4)	16:08 (11) 15:29
20	04:46 21:58	05:49 20:49	20:11 (2) 20:16 (2)	06:55 19:24	08:00 18:31 (4)	16:10 (11) 15:29
21	04:48 21:57	05:51 20:47	20:13 (2) 20:14 (2)	06:57 19:21	08:02 18:32 (4)	16:12 (11) 15:30
22	04:49 21:55	05:53 20:44	20:14 (2) 19:18	18:50 (4) 18:33 (4)	17:59 18:04	16:14 (11) 15:30
23	04:51 21:53	05:55 20:41	19:16 19:13	18:36 (4) 18:47 (4)	08:07 17:57	16:16 (11) 15:30
24	04:53 21:51	05:58 20:39	19:13 19:10	18:45 (4) 18:50 (4)	17:54 17:59	16:18 (11) 15:31
25	04:55 21:49	06:00 20:36	19:10 19:08	18:51 (4) 18:53 (4)	17:51 17:57	16:20 (11) 15:31
26	04:57 21:47	06:02 20:33	19:08 19:07	18:54 (4) 18:56 (4)	17:53 17:59	16:22 (11) 15:32
27	04:59 21:45	06:04 20:31	19:07 19:04	18:57 (4) 18:59 (4)	18:00 18:04	16:24 (11) 15:32
28	05:01 21:43	06:06 20:28	19:04 19:02	18:59 (4) 19:01	18:06 18:07	16:26 (11) 15:33
29	05:03 21:41	06:08 20:25	19:01 18:59	19:02 19:04	18:08 18:10	16:28 (11) 15:34
30	05:05 21:39	06:10 20:23	19:03 18:56	19:05 19:07	18:11 18:13	16:30 (11) 15:35
31	05:07 21:37	06:13 20:20	19:06 19:08	19:08 19:10	18:14 18:16	16:32 (11) 15:36
Potential sun hours	538	474	386	321	241	207
Total, worst case		310	411	500	95	
Sun reduction		0.50	0.46	0.28	0.08	
Oper. time red.		1.00	1.00	1.00	1.00	
Wind dir. red.		1.00	1.00	1.00	1.00	
Total reduction		0.50	0.46	0.28	0.08	
Total, real		156	190	141	7	

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rudziš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (463)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:08 15:54	08:57 15:29
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22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:14 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 29 (94010010711001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (605)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 29 (94010010711002) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (607)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 31A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (603)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
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29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 31B - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (740)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 33 (94010010712001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (596)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
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12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
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14	08:51 16:00	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 16:03	08:53 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
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23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 33 (94010010712002) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (595)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 35 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (620)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:51	07:30 16:29	08:35 15:36
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22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 35A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (615)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 35B - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (621)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 38 (94010010805002) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (626)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
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5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
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14	08:51 16:00	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 16:03	08:53 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 40 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (601)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 41 (94010020105001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (582)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 41 (94010020105003) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (581)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
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31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 42 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (641)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 44 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (643)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:14 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 45 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (578)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
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17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 45A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (573)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
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14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
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Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 46 (94010010811001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (634)

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
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5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 46 (94010010811002) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (635)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:51	07:30 16:29	08:35 15:36
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 47 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (557)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 48 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (622)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 49 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (522)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 50 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (616)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 50A - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (614)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:19	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 51 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (556)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
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17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 52 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (687)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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14	08:51 16:00	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 16:03	08:53 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 53 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (568)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
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17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 54 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (756)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 55 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (513)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:56 15:29
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20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 56 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (731)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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14	08:51 16:00	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 16:03	08:53 15:29
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17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
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29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 57 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (534)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
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14	08:51 16:00	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	08:53 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 58 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (751)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 59 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (569)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
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Table layout: For each day in each month the following matrix apply

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 60 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (748)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 61 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (570)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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14	08:51 16:00	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	08:53 15:29
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17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 62 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (749)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 62A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (695)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:09	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 63 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (535)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 64 (94010040147001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (684)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 64 (94010040147003) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (683)

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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 65 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (560)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 67 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (551)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	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 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 68 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (735)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 69 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (531)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 70 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (794)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 71 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (509)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
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19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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Total, worst case												
Sun reduction												
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Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 72 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (727)
 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.

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2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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14	08:51 16:00	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	08:53 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 73 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (563)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	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	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 74 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (755)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 75 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (510)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	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	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 76 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (747)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 78 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (693)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
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18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 80 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (758)
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	09:01 15:39	09:54 (1) 10:18 (1)	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32
2	09:00 15:41	09:55 (1) 10:19 (1)	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30
3	09:00 15:42	09:55 (1) 10:19 (1)	08:17 16:45	07:08 17:50	06:42 20:00	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27
4	08:59 15:43	09:56 (1) 10:19 (1)	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	07:35 16:25
5	08:59 15:45	09:56 (1) 10:20 (1)	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23
6	08:58 15:46	09:57 (1) 10:21 (1)	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:40	07:39 16:20
7	08:58 15:48	09:57 (1) 10:21 (1)	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18
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9	08:56 15:51	09:58 (1) 10:21 (1)	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
10	08:55 15:53	09:59 (1) 10:21 (1)	08:01 17:01	06:49 18:06	06:23 20:15	05:06 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
11	08:54 15:55	10:00 (1) 10:22 (1)	07:59 17:04	06:46 18:09	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10
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13	08:52 15:59	10:02 (1) 10:22 (1)	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:06
14	08:51 16:00	10:02 (1) 10:21 (1)	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
15	08:50 16:02	10:03 (1) 10:21 (1)	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:39 21:02	06:44 19:38	07:49 18:15	08:00 16:02
16	08:48 16:04	10:04 (1) 10:21 (1)	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00
17	08:47 16:06	10:05 (1) 10:20 (1)	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58
18	08:46 16:09	10:08 (1) 10:20 (1)	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56
19	08:44 16:11	10:10 (1) 10:18 (1)	07:40 17:23	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54
20	08:43 16:13	10:18 (1) 10:18 (1)	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53
21	08:41 16:15	10:18 (1) 10:18 (1)	07:35 17:27	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51
22	08:40 16:17	10:18 (1) 10:18 (1)	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49
23	08:38 16:19	10:18 (1) 10:18 (1)	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48
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25	08:35 16:24	10:18 (1) 10:18 (1)	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45
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Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case	386										130	727
Sun reduction	0.11										0.08	0.06
Oper. time red.	1.00										1.00	1.00
Wind dir. red.	1.00										1.00	1.00
Total reduction	0.11										0.08	0.06
Total, real	42										10	45

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 82 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (752)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rigas iela 90 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (686)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:40 17:23	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:31	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Rukiš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (795)
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	09:01 15:40	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:02	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:37
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	05:23 21:06	04:25 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
4	08:59 15:44	08:15 16:47	07:06 17:53	06:40 20:02	05:21 21:08	04:23 22:07	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:50	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:18 21:27	06:24 20:06	07:27 18:42	07:37 16:23	08:40 15:34
6	08:58 15:47	08:11 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:14 21:15	04:21 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:18	08:43 15:32
8	08:57 15:50	08:06 16:57	06:55 18:02	06:28 20:11	05:11 21:17	04:20 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:52	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
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 22:13	05:28 21:15	06:34 19:53	07:38 18:29	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:04	06:46 18:09	06:20 20:17	05:04 21:23	04:18 22:15	04:32 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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
13	08:52 15:59	07:54 17:09	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:21	07:55 16:06	08:51 15:29
14	08:51 16:01	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:37 21:05	06:43 19:41	07:47 18:18	07:58 16:04	08:53 15:29
15	08:50 16:03	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:16 22:19	04:38 22:06	05:39 21:02	06:45 19:39	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:05	07:47 17:16	06:33 18:20	06:07 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:55 15:29
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:43 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:55	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:35 17:27	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:52 20:47	06:57 19:22	08:03 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	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	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:41 21:47	04:15 22:22	04:52 21:53	05:56 20:42	07:02 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:34	06:10 18:38	05:46 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:50	04:36 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:23 15:44	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:33 21:56	04:18 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:35		06:53 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:39	09:01 15:37
31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:35		09:01 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Sauliešis - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (782)
 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	09:01 15:40	08:21 16:40		07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	03:20 22:20	02:15 21:35	01:10 20:17	00:05 18:54	08:33 15:37
2	09:00 15:41	08:19 16:42		07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	03:21 22:20	02:16 21:33	01:11 20:15	00:06 18:51	08:35 15:36
3	09:00 15:42	08:17 16:45	08:49 (6)	07:08 17:51	06:42 20:00	05:23 21:06	04:25 22:06	03:22 22:19	02:17 21:31	01:12 20:12	00:07 18:48	08:37 15:35
4	08:59 15:44	08:15 16:47	08:46 (6)	07:06 17:53	06:40 20:02	05:21 21:08	04:23 22:07	03:23 22:18	02:18 21:29	01:13 20:09	00:08 18:45	08:38 15:34
5	08:59 15:45	08:13 16:49	08:44 (6)	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	03:24 22:18	02:19 21:27	01:14 20:06	00:09 18:42	08:40 15:34
6	08:58 15:47	08:11 16:52	08:42 (6)	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	03:25 22:17	02:20 21:24	01:15 20:04	00:10 18:40	08:42 15:33
7	08:58 15:48	08:08 16:54	08:39 (6)	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	03:26 22:16	02:21 21:22	01:16 20:01	00:11 18:37	08:43 15:32
8	08:57 15:50	08:06 16:57	08:38 (6)	06:55 18:02	06:28 20:11	05:11 21:17	04:20 22:12	03:27 22:15	02:22 21:20	01:17 19:58	00:12 18:34	08:45 15:31
9	08:56 15:51	08:04 16:59	08:37 (6)	06:52 18:04	06:26 20:13	05:09 21:19	04:19 22:13	03:28 22:14	02:23 21:17	01:18 19:55	00:13 18:31	08:46 15:31
10	08:55 15:53	08:01 17:01	08:36 (6)	06:49 18:06	06:23 20:15	05:07 21:21	04:18 22:14	03:29 22:13	02:24 21:15	01:19 19:53	00:14 18:29	08:48 15:30
11	08:54 15:55	07:59 17:04	08:35 (6)	06:46 18:09	06:20 20:17	05:04 21:23	04:17 22:15	03:30 22:12	02:25 21:12	01:20 19:50	00:15 18:26	08:49 15:30
12	08:53 15:57	07:57 17:06	08:34 (6)	06:44 18:11	06:17 20:19	05:02 21:25	04:17 22:16	03:31 22:10	02:26 21:10	01:21 19:47	00:16 18:23	08:50 15:30
13	08:52 15:59	07:54 17:09	08:33 (6)	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	03:32 22:09	02:27 21:07	01:22 19:44	00:17 18:21	08:51 15:29
14	08:51 16:01	07:52 17:11	08:32 (6)	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	03:33 22:08	02:28 21:05	01:23 19:41	00:18 18:18	08:53 15:29
15	08:50 16:03	07:50 17:13	08:31 (6)	06:35 18:18	06:09 20:26	04:56 21:32	04:16 22:19	03:34 22:06	02:29 21:02	01:24 19:38	00:19 18:15	08:54 15:29
16	08:48 16:05	07:47 17:16	08:30 (6)	06:33 18:20	06:07 20:28	04:54 21:34	04:15 22:19	03:35 22:05	02:30 21:00	01:25 19:36	00:20 18:13	08:55 15:29
17	08:47 16:07	07:45 17:18	08:29 (6)	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	03:36 22:04	02:31 20:57	01:26 19:33	00:21 18:10	08:56 15:29
18	08:46 16:09	07:42 17:20	08:28 (6)	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	03:37 22:02	02:32 20:55	01:27 19:30	00:22 18:07	08:57 15:29
19	08:44 16:11	07:40 17:23	08:27 (6)	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	03:38 22:00	02:33 20:52	01:28 19:27	00:23 18:05	08:58 15:29
20	08:43 16:13	07:37 17:25	08:26 (6)	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	03:39 22:00	02:34 20:50	01:29 19:24	00:24 18:02	08:59 15:30
21	08:41 16:15	07:35 17:27	08:25 (6)	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	03:40 22:01	02:35 20:47	01:30 19:22	00:25 17:59	09:00 15:30
22	08:40 16:17	07:32 17:30	08:24 (6)	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	03:41 22:02	02:36 20:44	01:31 19:19	00:26 17:57	09:01 15:31
23	08:38 16:19	07:29 17:32	08:23 (6)	06:13 18:35	05:48 20:44	04:41 21:47	04:15 22:22	03:42 22:03	02:37 20:42	01:32 19:16	00:27 17:54	09:02 15:31
24	08:36 16:22	07:27 17:34	08:22 (6)	06:10 18:38	05:45 20:46	04:39 21:49	04:16 22:22	03:43 22:04	02:38 20:39	01:33 19:13	00:28 17:52	09:03 15:32
25	08:35 16:24	07:24 17:37	08:21 (6)	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	03:44 22:05	02:39 20:36	01:34 19:10	00:29 16:49	09:04 15:32
26	08:33 16:26	07:22 17:39	08:20 (6)	06:05 18:42	05:40 20:50	04:36 21:53	04:17 22:22	03:45 22:06	02:40 20:34	01:35 19:08	00:30 16:47	09:05 15:33
27	08:31 16:28	07:19 17:41	08:19 (6)	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	03:46 22:07	02:41 20:31	01:36 19:05	00:31 16:44	09:06 15:34
28	08:29 16:31	07:16 17:44	08:18 (6)	05:59 18:46	05:35 20:55	04:32 21:56	04:18 22:21	03:47 22:08	02:42 20:28	01:37 19:02	00:32 16:42	09:07 15:35
29	08:27 16:33		08:17 (6)	05:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	03:48 22:09	02:43 20:26	01:38 18:59	00:33 16:39	09:08 15:36
30	08:25 16:35		08:16 (6)	05:53 19:51	05:30 20:59	04:30 22:00	04:19 22:21	03:49 22:10	02:44 20:23	01:39 18:56	00:34 16:37	09:09 15:37
31	08:23 16:38		08:15 (6)	05:51 19:53		04:28 22:01	04:20 22:21	03:50 22:11	02:45 20:20	01:40 18:54	00:35 16:34	09:10 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case		259								138	124	
Sun reduction		0.19								0.28	0.08	
Oper. time red.		1.00								1.00	1.00	
Wind dir. red.		1.00								1.00	1.00	
Total reduction		0.19								0.28	0.08	
Total, real		50								39	10	

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Saulites - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (456)
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 15:40	08:21 16:40 16:42	16:01 (2) 16:03 (2) 17:46	07:13 17:46 17:48	06:48 19:55 19:57	05:27 21:01 21:03	04:27 22:02 22:04	04:20 22:20 22:21	05:09 21:35 21:33	06:15 20:17 20:14	07:18 18:53 18:50	07:27 16:32 15:49 (2)
2	09:00 15:40 16:42	08:19 16:42 16:44	16:00 (2) 16:06 (2) 17:48	07:11 17:48 17:50	06:45 19:57 19:59	05:25 21:03 21:06	04:25 22:04 22:05	04:21 22:19 22:19	05:11 21:33 21:31	06:17 20:14 20:12	07:20 18:50 18:48	07:20 16:29 15:49 (2)
3	09:00 15:42 16:44	08:17 16:44 16:47	15:59 (2) 16:09 (2) 17:50	07:08 17:50 17:53	06:42 19:59 20:01	05:23 21:06 21:08	04:24 22:05 22:07	04:21 22:19 22:18	05:13 21:31 21:28	06:19 20:12 20:09	07:23 18:48 18:45	07:23 16:27 15:49 (2)
4	08:59 15:43 16:47	08:15 16:47 16:49	15:58 (2) 16:11 (2) 17:53	07:05 17:53 17:55	06:39 20:01 20:04	05:20 21:08 21:10	04:23 22:07 22:08	04:22 22:18 22:17	05:15 21:28 21:26	06:21 20:09 20:06	07:25 18:45 18:42	07:25 16:25 15:46 (2)
5	08:59 15:45 16:49	08:12 16:49 16:52	15:57 (2) 16:14 (2) 17:55	07:03 17:55 17:57	06:36 20:04 20:06	05:18 21:10 21:12	04:22 22:08 22:09	04:24 22:17 22:16	05:17 21:26 21:24	06:23 20:06 20:03	07:27 18:42 18:39	07:27 16:22 15:44 (2)
6	08:58 15:46 16:52	08:10 16:52 16:54	15:56 (2) 16:16 (2) 17:57	07:00 17:57 18:00	06:34 20:06 20:08	05:15 21:12 21:13	04:21 22:09 22:10	04:25 22:16 22:15	05:19 21:24 21:22	06:25 20:03 20:01	07:29 18:39 18:37	07:29 16:20 15:41 (2)
7	08:57 15:48 16:54	08:08 16:54 16:56	15:57 (2) 16:19 (2) 17:59	06:57 17:59 18:02	06:31 20:08 20:10	05:13 21:14 21:16	04:20 22:11 22:12	04:26 22:16 22:15	05:21 21:22 21:19	06:27 20:01 19:58	07:31 18:37 18:34	07:31 16:18 15:39 (2)
8	08:57 15:49 16:56	08:06 16:56 16:58	15:56 (2) 16:19 (2) 18:02	06:54 18:02 18:05	06:28 20:10 20:12	05:11 21:16 21:19	04:19 22:12 22:13	04:27 22:15 22:14	05:23 21:19 21:17	06:29 19:58 19:55	07:33 18:34 18:31	07:33 16:16 15:37 (2)
9	08:56 15:51 16:59	08:03 16:59 17:01	15:56 (2) 16:20 (2) 18:04	06:52 18:04 18:06	06:25 20:12 20:14	05:09 21:19 21:21	04:18 22:13 22:14	04:28 22:14 22:13	05:26 21:17 21:14	06:32 19:55 19:52	07:36 18:31 18:28	07:36 16:14 15:34 (2)
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14	08:51 16:00 17:11	07:52 17:11 17:13	15:59 (2) 16:17 (2) 18:15	06:38 18:15 18:17	06:12 20:24 20:26	04:58 21:29 21:31	04:16 22:18 22:19	04:36 22:08 22:06	05:36 21:05 21:02	06:42 19:41 19:38	07:47 18:18 18:15	07:47 16:03 15:29
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Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case		279								123	159	
Sun reduction		0.19								0.28	0.08	
Oper. time red.		1.00								1.00	1.00	
Wind dir. red.		1.00								1.00	1.00	
Total reduction		0.19								0.28	0.08	
Total, real		54								35	12	

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Sedaskalni (94880100120001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (496)

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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:22	06:27 20:00	07:31 18:37	07:41 16:18	08:43 15:32
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18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:36	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Sedaskalni (94880100255001) - Shadow Receptor: 1.0 x 1.0 Azimuth: 3.1° Slope: 90.0° (584)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Sermuli - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (768)
 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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:02	04:27 22:03	04:20 22:20	05:09 21:36	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:37
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
4	09:00 15:43	08:15 16:47	07:06 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	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:11 16:52	07:00 17:57	06:34 20:06	05:16 21:13	04:21 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:18	08:43 15:32
8	08:57 15:50	08:06 16:57	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	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
10	08:55 15:53	08:02 17:01	06:49 18:06	06:23 20:15	05:07 21:21	04:18 22:15	04:30 22:13	05:28 21:15	06:34 19:53	07:38 18:29	07:48 16:12	08:48 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 22:16	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 22:11	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:30
13	08:52 15:59	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:28	04:16 22:17	04:34 22:09	05:34 21:08	06:40 19:44	07:45 18:21	07:55 16:06	08:52 15:29
14	08:51 16:01	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:58 16:04	08:53 15:29
15	08:50 16:03	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:07	05:39 21:03	06:45 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:49 16:05	07:47 17:16	06:33 18:20	06:07 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:55 15:29
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:21	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:07 15:56	08:57 15:29
19	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:35 17:27	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:51 20:47	06:57 19:22	08:03 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	04:50 21:55	05:54 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:48	04:15 22:22	04:51 21:54	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:34	06:10 18:38	05:45 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:37	07:06 19:10	07:12 16:49	08:21 15:45	09:01 15:32
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:51	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:24 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:26 15:42	09:01 15:34
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:32 21:56	04:18 22:22	05:01 21:44	06:06 20:28	07:12 19:02	07:19 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valke_Vestas172 Shadow receptor: Sietini - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (453)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Silkalni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (774)
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	09:01 15:40	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:02	04:27 22:03	04:20 22:20	05:09 21:36	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:37
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	05:23 21:06	04:25 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
4	09:00 15:44	08:15 16:47	07:06 17:53	06:40 20:02	05:21 21:08	04:23 22:07	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:50	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:18 21:27	06:24 20:07	07:27 18:42	07:37 16:23	08:40 15:34
6	08:58 15:47	08:11 16:52	07:00 17:57	06:34 20:06	05:16 21:13	04:21 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:14 21:15	04:21 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:18	08:43 15:32
8	08:57 15:50	08:06 16:57	06:55 18:02	06:29 20:11	05:11 21:17	04:20 22:12	04:28 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:52	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
10	08:55 15:53	08:02 17:01	06:49 18:07	06:23 20:15	05:07 21:21	04:18 22:14	04:30 22:13	05:28 21:15	06:34 19:53	07:38 18:29	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:04	06:47 18:09	06:20 20:17	05:04 21:23	04:18 22:15	04:32 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:18 20:20	05:02 21:25	04:17 22:16	04:33 22:11	05:32 21:10	06:38 19:47	07:43 18:23	07:53 16:08	08:50 15:30
13	08:52 15:59	07:54 17:09	06:41 18:13	06:15 20:22	05:00 21:28	04:16 22:17	04:34 22:09	05:34 21:08	06:40 19:44	07:45 18:21	07:55 16:06	08:52 15:29
14	08:51 16:01	07:52 17:11	06:38 18:16	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:37 21:05	06:43 19:41	07:47 18:18	07:58 16:04	08:53 15:29
15	08:50 16:03	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:16 22:19	04:38 22:07	05:39 21:03	06:45 19:39	07:49 18:15	08:00 16:02	08:54 15:29
16	08:49 16:05	07:47 17:16	06:33 18:20	06:07 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:55 15:29
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:21	04:43 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:07 15:56	08:57 15:29
19	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:55	08:57 15:29
20	08:43 16:13	07:37 17:25	06:22 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:35 17:27	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:52 20:47	06:57 19:22	08:03 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	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	08:38 16:20	07:29 17:32	06:13 18:35	05:48 20:44	04:41 21:47	04:15 22:22	04:52 21:54	05:56 20:42	07:02 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:34	06:10 18:38	05:46 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	08:35 16:24	07:24 17:37	06:08 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:37	07:06 19:10	07:12 16:49	08:21 15:45	09:01 15:32
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:51	04:36 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:23 15:44	09:01 15:33
27	08:31 16:29	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:33 21:56	04:18 22:21	05:01 21:44	06:07 20:28	07:12 19:02	07:19 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:35		06:54 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:39	09:01 15:37
31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:35		09:01 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Staldoti - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (798)
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	09:01	08:21	08:54 (6)	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:19	08:33
2	15:40	16:40	10 09:04 (6)	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:54	16:32
3	09:00	08:19	08:51 (6)	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21	08:35
4	15:41	16:42	14 09:05 (6)	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30
5	09:00	08:17	08:49 (6)	07:08	06:42	05:23	04:25	04:22	05:13	06:19	07:23	08:37
6	15:42	16:45	17 09:06 (6)	17:51	20:00	21:06	22:06	22:19	21:31	20:12	18:48	16:27
7	08:59	08:15	08:46 (6)	07:06	06:40	05:21	04:23	04:23	05:15	06:21	07:25	08:38
8	15:44	16:47	21 09:07 (6)	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25
9	08:59	08:13	08:46 (6)	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	08:40
10	15:45	16:49	22 09:08 (6)	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23
11	08:58	08:11	08:46 (6)	07:00	06:34	05:16	04:21	04:25	05:20	06:26	07:29	08:42
12	15:47	16:52	23 09:09 (6)	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:21
13	08:58	08:08	08:45 (6)	06:57	06:31	05:13	04:20	04:26	05:22	06:28	07:32	08:43
14	15:48	16:54	23 09:08 (6)	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18
15	08:57	08:06	08:46 (6)	06:55	06:28	05:11	04:20	04:27	05:24	06:30	07:34	08:45
16	15:50	16:57	23 09:09 (6)	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16
17	08:56	08:04	08:46 (6)	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	08:46
18	15:51	16:59	22 09:08 (6)	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14
19	08:55	08:01	08:47 (6)	06:49	06:23	05:07	04:18	04:30	05:28	06:34	07:38	08:48
20	15:53	17:01	22 09:09 (6)	18:06	20:15	21:21	22:14	22:13	21:15	19:53	18:29	16:12
21	08:54	07:59	08:47 (6)	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	08:49
22	15:55	17:04	21 09:08 (6)	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10
23	08:53	07:57	08:48 (6)	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	08:50
24	15:57	17:06	20 09:08 (6)	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08
25	08:52	07:54	08:48 (6)	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	08:51
26	15:59	17:09	18 09:06 (6)	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:21	16:06
27	08:51	07:52	08:49 (6)	06:38	06:12	04:58	04:16	04:36	05:37	06:42	07:47	08:53
28	16:01	17:11	16 09:05 (6)	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04
29	08:50	07:50	08:52 (6)	06:35	06:09	04:56	04:16	04:38	05:39	06:45	07:49	08:54
30	16:03	17:13	11 09:03 (6)	18:18	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02
31	08:48	07:47	08:55 (6)	06:33	06:07	04:54	04:15	04:39	05:41	06:47	07:51	08:55
32	16:05	17:16	4 08:59 (6)	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:13	16:00
33	08:47	07:45		06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:54	08:56
34	16:07	17:18		18:22	20:31	21:36	22:20	22:04	20:57	19:33	18:10	15:58
35	08:46	07:42		06:27	06:01	04:50	04:15	04:43	05:45	06:51	07:56	08:56
36	16:09	17:20		18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56
37	08:44	07:40		06:24	05:59	04:48	04:15	04:44	05:47	06:53	07:58	08:57
38	16:11	17:23		18:27	20:35	21:40	22:21	22:00	20:52	19:27	18:05	15:55
39	08:43	07:37		06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:58
40	16:13	17:25		18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53
41	08:41	07:35		06:19	05:53	04:44	04:15	04:48	05:51	06:57	08:03	08:59
42	16:15	17:27		18:31	20:39	21:44	22:22	21:57	20:47	19:22	17:59	15:50
43	08:40	07:32		06:16	05:51	04:42	04:15	04:50	05:54	06:59	08:05	08:59
44	16:17	17:30		18:33	20:42	21:46	22:22	21:55	20:44	19:19	17:57	15:50
45	08:38	07:29		06:13	05:48	04:41	04:15	04:51	05:56	07:01	08:07	08:57
46	16:19	17:32		18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48
47	08:36	07:27		06:10	05:45	04:39	04:16	04:53	05:58	07:04	08:09	08:59
48	16:22	17:34		18:38	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:46
49	08:35	07:24		06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21
50	16:24	17:37		18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45
51	08:33	07:22		06:05	05:40	04:36	04:17	04:57	06:02	07:08	07:14	08:23
52	16:26	17:39		18:42	20:50	21:53	22:22	21:48	20:34	19:08	16:47	15:44
53	08:31	07:19		06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25
54	16:28	17:41		18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42
55	08:29	07:16		05:59	05:35	04:32	04:18	05:01	06:06	07:12	07:18	08:27
56	16:31	17:44		18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41
57	08:27			06:56	05:33	04:31	04:18	05:03	06:09	07:14	07:21	08:29
58	16:33			19:49	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:40
59	08:25	08:58 (6)		06:53	05:30	04:30	04:19	05:05	06:11	07:16	07:23	08:31
60	16:35	1 08:59 (6)		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38
61	08:23	08:56 (6)		06:51		04:28		05:07	06:13		07:25	08:31
62	16:38	6 09:02 (6)		19:53		22:01		21:38	20:20		16:34	15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case	7	287								94	202	
Sun reduction	0.11	0.19								0.28	0.08	
Oper. time red.	1.00	1.00								1.00	1.00	
Wind dir. red.	1.00	1.00								1.00	1.00	
Total reduction	0.11	0.19								0.28	0.08	
Total, real	1	56								27	16	

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Sviestini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (471)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
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11	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Seli 10 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (486)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Seli 12 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (457)
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 16:40	07:13 17:46	06:47 19:55	05:27 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
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Seli Maja 18 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (464)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	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	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:02	08:53 15:29
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22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Sili - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (446)
 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 15:40	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02	04:20 22:19	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:32 15:37
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	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:29 16:30	08:34 15:36
3	08:59 15:42	08:16 16:45	07:08 17:50	06:42 19:59	05:23 21:05	04:25 22:05	04:22 22:18	05:13 21:30	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:44	08:14 16:47	07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:06	04:23 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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6	08:58 15:47	08:10 16:52	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 16:20	08:41 15:33
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11	08:54 15:55	07:59 17:04	06:46 18:08	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 16:10	08:48 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 21:09	06:38 19:47	07:42 18:23	07:52 16:08	08:50 15:30
13	08:51 15:59	07:54 17:08	06:41 18:13	06:14 20:21	05:00 21:27	04:16 22:16	04:34 22:08	05:34 21:07	06:40 19:44	07:44 18:20	07:55 16:06	08:51 15:29
14	08:50 16:01	07:51 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:17	04:36 22:07	05:36 21:04	06:42 19:41	07:46 18:18	07:57 16:04	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	04:38 22:06	05:39 21:02	06:44 19:38	07:49 18:15	07:59 16:02	08:53 15:29
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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	04:42 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:34	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:53	08:57 15:30
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22	08:39 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:50 21:55	05:53 20:44	06:59 19:18	08:04 17:57	08:15 15:49	08:59 15:31
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28	08:28 16:31	07:16 17:43	05:59 18:46	05:35 20:54	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	09:00 15:35
29	08:27 16:33		06:56 19:48	05:33 20:57	04:31 21:57	04:18 22:20	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:40	09:00 15:36
30	08:25 16:35		06:53 19:50	05:30 20:59	04:30 21:59	04:19 22:20	05:05 21:39	06:10 20:22	07:16 18:56	07:23 16:37	08:31 15:38	09:00 15:37
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Potential sun hours	228	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
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Total reduction												
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Table layout: For each day in each month the following matrix apply

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SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Taigas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (466)
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

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

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdekas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (761)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:50	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:40 17:23	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemara iela 11 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (732)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
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29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemara iela 13 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (706)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemarskaja 13A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (707)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemara iela 1A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (754)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemara iela 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (742)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemara iela 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (746)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemara iela 7 (94010040129001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (711) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
0.80 1.82 4.75 6.09 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemara iela 7 (94010040129004) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (712) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
0.80 1.82 4.75 6.09 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valdemara iela 9 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (750)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valmieras iela 11 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (691)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:09	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valmieras iela 3 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (763) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
0.80 1.82 4.75 6.09 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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:36	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:10	21:17	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:03	18:08	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:16	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07	15:29
13	08:52	07:54	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:21	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:34	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	08:21	09:00
	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valmieras iela 5 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (764)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valmieras iela 7 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (753)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valmieras iela 7A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (724)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:34	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:26	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
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	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
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	16:00	17:11	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03	15:29
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	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:53	04:15	04:39	05:41	06:46	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:35	18:12	16:00	15:29
17	08:47	07:44	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:56
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:39	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:52	15:29
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	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
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23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
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	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
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	16:24	17:36	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
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	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Valmieras iela 9 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (743)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vanagi - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (771)
 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	09:01 15:39	08:21 16:40	09:18 (5) 17:46	07:14 19:55	06:48 21:01	05:28 22:03	04:27 22:20	05:09 21:35	06:15 20:17	07:19 18:53	07:28 16:32	08:33 15:37
2	09:00 15:41	08:19 16:42	09:18 (5) 17:48	07:11 19:57	06:45 21:04	05:25 22:04	04:26 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	09:20 (5) 17:50	07:08 19:57	06:42 21:06	05:23 22:06	04:24 22:22	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
4	08:59 15:43	08:15 16:47	09:20 (5) 17:53	07:06 20:02	06:39 21:08	05:20 22:07	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	09:22 (5) 17:55	07:03 20:04	06:37 21:10	05:18 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:55 (5) 15:33
6	08:58 15:46	08:11 16:52	09:25 (5) 17:57	07:00 20:06	06:34 21:12	05:16 22:10	04:21 22:17	05:19 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:52 (5) 15:33
7	08:58 15:48	08:08 16:54	09:34 (5) 18:00	06:57 20:08	06:31 21:15	05:13 22:11	04:20 22:16	05:22 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:51 (5) 15:32
8	08:57 15:50	08:06 16:57	09:34 (5) 18:02	06:55 20:11	06:28 21:17	05:11 22:12	04:19 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:50 (5) 15:31
9	08:56 15:51	08:04 16:59	09:34 (5) 18:04	06:52 20:13	06:26 21:19	05:09 22:13	04:19 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:49 (5) 15:31
10	08:55 15:53	08:01 17:01	09:34 (5) 18:06	06:49 20:15	06:23 21:21	05:07 22:14	04:18 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:49 (5) 15:30
11	08:54 15:55	07:59 17:04	09:34 (5) 18:09	06:46 20:17	06:20 21:23	05:04 22:15	04:17 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:48 (5) 15:30
12	08:53 15:57	07:57 17:06	09:34 (5) 18:11	06:44 20:19	06:17 21:25	05:02 22:16	04:17 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:08	08:48 (5) 15:29
13	08:52 15:59	07:54 17:08	09:34 (5) 18:13	06:41 20:22	06:15 21:27	05:00 22:17	04:16 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:06	08:48 (5) 15:29
14	08:51 16:01	07:52 17:11	09:34 (5) 18:15	06:38 20:24	06:12 21:30	04:58 22:18	04:16 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:48 (5) 15:29
15	08:50 16:03	07:50 17:13	09:34 (5) 18:18	06:35 20:26	06:09 21:32	04:56 22:19	04:15 22:06	05:39 21:02	06:45 19:38	07:49 18:15	08:00 16:02	08:48 (5) 15:29
16	08:48 16:05	07:47 17:16	09:34 (5) 18:20	06:33 20:28	06:07 21:34	04:54 22:19	04:15 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:48 (5) 15:29
17	08:47 16:07	07:45 17:18	09:34 (5) 18:22	06:30 20:30	06:04 21:36	04:52 22:20	04:15 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:48 (5) 15:29
18	08:46 16:09	07:42 17:20	09:34 (5) 18:24	06:27 20:33	06:01 21:38	04:50 22:20	04:15 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:48 (5) 15:29
19	08:44 16:11	07:40 17:23	09:34 (5) 18:26	06:24 20:35	05:59 21:40	04:48 22:21	04:15 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:54	08:50 (5) 15:29
20	08:43 16:13	07:37 17:25	09:34 (5) 18:29	06:21 20:37	05:56 21:42	04:46 22:21	04:15 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:50 (5) 15:30
21	08:41 16:15	07:35 17:27	09:34 (5) 18:31	06:19 20:39	05:53 21:44	04:44 22:22	04:15 21:57	05:51 20:47	06:57 19:22	08:02 17:59	08:13 15:51	08:53 (5) 15:30
22	08:40 16:17	07:32 17:30	09:34 (5) 18:33	06:16 20:42	05:51 21:46	04:42 22:22	04:15 21:55	05:54 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:55 (5) 15:30
23	08:38 16:19	07:29 17:32	09:34 (5) 18:35	06:13 20:44	05:48 21:47	04:40 22:22	04:15 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	08:57 (5) 15:31
24	08:36 16:22	07:27 17:34	09:34 (5) 18:38	06:10 20:46	05:45 21:49	04:39 22:22	04:16 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 (5) 15:32
25	08:35 16:24	07:24 17:37	09:34 (5) 18:40	06:07 20:48	05:43 21:51	04:37 22:22	04:16 21:50	06:00 20:36	07:06 19:10	08:12 16:49	08:21 15:45	09:02 (5) 15:32
26	08:33 16:26	07:22 17:39	09:34 (5) 18:42	06:05 20:50	05:40 21:53	04:35 22:22	04:16 21:48	06:02 20:34	07:08 19:07	08:14 16:47	08:23 15:43	09:05 (5) 15:33
27	08:31 16:28	07:19 17:41	09:34 (5) 18:44	06:02 20:53	05:38 21:55	04:34 22:22	04:17 21:46	06:04 20:31	07:10 19:05	07:16 16:44	07:16 15:42	09:07 (5) 15:34
28	08:29 16:31	07:16 17:44	09:34 (5) 18:46	05:59 20:55	05:35 21:56	04:32 22:21	04:18 21:44	06:06 20:28	07:12 19:02	07:18 16:42	07:18 15:41	09:08 (5) 15:35
29	08:27 16:33	07:16 17:46	09:34 (5) 18:48	05:56 20:57	05:33 21:58	04:31 22:21	04:18 21:42	06:09 20:26	07:14 18:59	07:21 16:39	07:21 15:40	09:09 (5) 15:36
30	08:25 16:35	07:15 17:48	09:34 (5) 18:50	05:53 20:59	05:30 22:00	04:29 22:21	04:19 21:40	06:11 20:23	07:16 18:56	07:23 16:37	07:23 15:38	09:10 (5) 15:37
31	08:23 16:38	07:15 17:50	09:34 (5) 18:51	05:51 20:59	05:28 22:01	04:28 22:21	05:07 21:38	06:13 20:20	07:17 16:34	07:25 16:34	07:25 15:38	09:11 (5) 15:38
Potential sun hours	227	262	365	429	515	539	538	475	386	321	241	207
Total, worst case	312	102									416	
Sun reduction	0.11	0.19									0.08	
Oper. time red.	1.00	1.00									1.00	
Wind dir. red.	1.00	1.00									1.00	
Total reduction	0.11	0.19									0.08	
Total, real	34	20									33	

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vecrubeni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (507)
 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	16:58 (12) 17:16 (12)	06:48 19:55	18:36 (4) 19:00 (4)
2	09:00 15:41	08:19 16:42	07:11 17:48	16:57 (12) 17:18 (12)	19:55 19:57	24 23
3	08:59 15:42	08:17 16:44	07:08 17:50	16:57 (12) 17:20 (12)	06:42 19:59	24 20
4	08:59 15:43	08:14 16:47	07:05 17:53	16:56 (12) 17:19 (12)	06:39 20:01	15 21
5	08:58 15:45	08:12 16:49	07:02 17:55	16:56 (12) 17:18 (12)	06:36 20:04	8 20
6	08:58 15:46	08:10 16:52	07:00 17:57	16:58 (12) 17:18 (12)	06:34 20:06	18 18
7	08:57 15:48	08:08 16:54	06:57 17:59	16:58 (12) 17:17 (12)	06:31 20:08	16 16
8	08:56 15:50	08:06 16:56	06:54 18:02	16:59 (12) 17:15 (12)	06:28 20:10	12 12
9	08:56 15:51	08:03 16:59	06:52 18:04	17:00 (12) 17:13 (12)	06:25 20:12	6 20
10	08:55 15:53	08:01 17:01	06:49 18:06	17:03 (12) 17:09 (12)	06:23 20:15	6 20
11	08:54 15:55	07:59 17:03	06:46 18:08	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 15:58	07:54 17:08	06:41 18:13	06:14 20:21	05:00 21:27	04:16 22:17
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	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	04:15 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	06:29 18:22	06:04 20:30	04:52 21:35	04:15 22:19
18	08:45 16:08	07:42 17:20	06:27 18:24	17:50 (4) 17:55 (4)	06:01 20:32	04:50 21:37
19	08:44 16:11	07:39 17:22	06:24 18:26	17:45 (4) 17:57 (4)	05:58 20:35	04:48 21:39
20	08:42 16:13	07:37 17:25	06:21 18:28	17:43 (4) 17:59 (4)	05:56 20:37	04:46 21:41
21	08:41 16:15	07:34 17:27	06:18 18:31	17:41 (4) 18:01 (4)	05:53 20:39	04:44 21:43
22	08:39 16:17	07:32 17:29	06:15 18:33	17:39 (4) 18:03 (4)	05:50 20:41	04:42 21:45
23	08:38 16:19	07:29 17:32	06:13 18:35	17:39 (4) 18:05 (4)	05:48 20:43	04:40 21:47
24	08:36 16:21	07:26 17:34	06:10 18:37	17:37 (4) 18:05 (4)	05:45 20:46	04:39 21:49
25	08:34 16:24	07:24 17:36	06:07 18:39	17:36 (4) 18:05 (4)	05:43 20:48	04:37 21:51
26	08:32 16:26	07:21 17:39	06:04 18:42	17:36 (4) 18:05 (4)	05:40 20:50	04:35 21:52
27	08:31 16:28	07:19 17:41	06:01 18:44	17:35 (4) 18:04 (4)	05:37 20:52	04:34 21:54
28	08:29 16:30	07:16 17:43	05:59 18:46	17:36 (4) 18:05 (4)	05:35 20:54	04:32 21:56
29	08:27 16:33	07:13 17:43	05:56 18:48	18:35 (4) 19:04 (4)	05:32 20:57	04:31 21:58
30	08:25 16:35	07:11 17:41	05:53 18:50	18:35 (4) 19:03 (4)	05:30 20:59	04:29 21:59
31	08:23 16:37	07:09 17:39	05:50 18:53	18:35 (4) 19:02 (4)	05:28 22:01	04:28 22:01
Potential sun hours	227	262	365	429	515	539
Total, worst case		422	512	251	163	
Sun reduction		0.19	0.40	0.43	0.58	
Oper. time red.		1.00	1.00	1.00	1.00	
Wind dir. red.		1.00	1.00	1.00	1.00	
Total reduction		0.19	0.40	0.43	0.58	
Total, real		82	206	107	95	

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vecrubeni - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (507)
 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	05:09	06:15	07:18	07:27	15:25 (11)
	22:20	21:35	20:17	18:53	16:32	27 15:52 (11)
2	04:21	05:11	06:17	07:20	07:30	15:25 (11)
	22:19	21:33	20:14	18:50	16:29	27 15:52 (11)
3	04:22	05:13	06:19	07:22	07:32	15:25 (11)
	22:19	21:31	20:12	18:48	16:27	26 15:51 (11)
4	04:23	05:15	20:14 (2)	06:21	07:25	17:39 (12)
	22:18	21:28	20:23 (2)	20:09	18:45	10 17:49 (12)
5	04:24	05:17	20:12 (2)	06:23	07:27	17:37 (12)
	22:17	21:26	13 20:25 (2)	20:06	18:42	15 17:52 (12)
6	04:25	05:19	20:10 (2)	06:25	07:29	17:35 (12)
	22:16	21:24	16 20:26 (2)	20:03	18:39	18 17:53 (12)
7	04:26	05:21	20:09 (2)	06:27	07:31	17:33 (12)
	22:15	21:22	18 20:27 (2)	20:01	8 18:47 (4)	20 17:53 (12)
8	04:27	05:23	20:08 (2)	06:29	18:35 (4)	07:33
	22:14	21:19	20 20:28 (2)	19:58	15 18:50 (4)	21 18:34
9	04:28	05:26	20:07 (2)	06:32	18:33 (4)	07:36
	22:13	21:17	22 20:29 (2)	19:55	19 18:52 (4)	22 17:54 (12)
10	04:30	05:28	20:07 (2)	06:34	18:31 (4)	07:38
	22:12	21:14	22 20:29 (2)	19:52	22 18:53 (4)	23 17:54 (12)
11	04:31	05:30	20:06 (2)	06:36	18:29 (4)	07:40
	22:11	21:12	24 20:30 (2)	19:49	25 18:54 (4)	22 17:53 (12)
12	04:33	05:32	20:05 (2)	06:38	18:28 (4)	07:42
	22:10	21:10	24 20:29 (2)	19:47	26 18:54 (4)	20 18:23
13	04:34	05:34	20:05 (2)	06:40	18:27 (4)	07:44
	22:09	21:07	24 20:29 (2)	19:44	27 18:54 (4)	17 17:48 (12)
14	04:36	05:36	20:04 (2)	06:42	18:26 (4)	07:46
	22:07	21:05	25 20:29 (2)	19:41	28 18:54 (4)	14 17:45 (12)
15	04:37	05:38	20:04 (2)	06:44	18:25 (4)	07:49
	22:06	21:02	24 20:28 (2)	19:38	29 18:54 (4)	11 17:42 (12)
16	04:39	05:40	20:04 (2)	06:46	18:25 (4)	07:51
	22:05	21:00	22 20:26 (2)	19:35	29 18:54 (4)	6 17:39 (12)
17	04:41	05:43	20:05 (2)	06:48	18:24 (4)	07:53
	22:03	20:57	18 20:23 (2)	19:32	29 18:53 (4)	1 17:36 (12)
18	04:42	05:45	20:05 (2)	06:51	18:24 (4)	07:55
	22:02	20:54	16 20:21 (2)	19:30	29 18:53 (4)	18:07
19	04:44	05:47	20:06 (2)	06:53	18:24 (4)	07:58
	22:00	20:52	13 20:19 (2)	19:27	28 18:52 (4)	18:04
20	04:46	05:49	20:07 (2)	06:55	18:24 (4)	08:00
	21:58	20:49	9 20:16 (2)	19:24	27 18:51 (4)	18:02
21	04:48	05:51	20:08 (2)	06:57	18:24 (4)	08:02
	21:57	20:47	6 20:14 (2)	19:21	26 18:50 (4)	5 16:42 (11)
22	04:49	05:53		06:59	18:25 (4)	08:04
	21:55	20:44		19:18	22 18:47 (4)	17:57
23	04:51	05:55		07:01	18:27 (4)	08:07
	21:53	20:41		19:16	18 18:45 (4)	17:54
24	04:53	05:58		07:03	18:28 (4)	08:09
	21:51	20:39		19:13	14 18:42 (4)	17:51
25	04:55	06:00		07:05	18:31 (4)	07:11
	21:49	20:36		19:10	8 18:39 (4)	16:49
26	04:57	06:02		07:08		07:13
	21:47	20:33		19:07		16:46
27	04:59	06:04		07:10		07:16
	21:45	20:31		19:04		16:44
28	05:01	06:06		07:12		07:18
	21:43	20:28		19:02		16:41
29	05:03	06:08		07:14		07:20
	21:41	20:25		18:59		16:39
30	05:05	06:10		07:16		07:23
	21:39	20:23		18:56		16:37
31	05:07	06:13				07:25
	21:37	20:20				16:34
Potential sun hours	538	474	386	321	241	207
Total, worst case		325	429	456	165	
Sun reduction		0.50	0.46	0.28	0.08	
Oper. time red.		1.00	1.00	1.00	1.00	
Wind dir. red.		1.00	1.00	1.00	1.00	
Total reduction		0.50	0.46	0.28	0.08	
Total, real		164	198	129	13	

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Veikals Seli - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (460)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	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	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vetaptieka - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (505)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:22	06:27 20:00	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:30
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:01	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:36	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vidini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (503)
 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	08:21	07:13	16:31 (2)	06:48	05:27
	15:39	16:40	17:46	22	16:53 (2)	19:55
2	09:00	08:19	07:11	16:32 (2)	06:45	05:25
	15:41	16:42	17:48	20	16:52 (2)	19:57
3	09:00	14:55 (4)	08:17	16:34 (2)	06:42	05:23
	15:42	1	14:56 (4)	16:50 (2)	19:59	21:06
4	08:59	14:55 (4)	08:15	16:36 (2)	06:39	05:20
	15:43	3	14:58 (4)	17:53	20:01	21:08
5	08:59	14:55 (4)	08:12	07:03	06:36	05:18
	15:45	4	14:59 (4)	17:55	20:04	21:10
6	08:58	14:55 (4)	08:10	07:00	06:34	05:15
	15:46	6	15:01 (4)	17:57	20:06	21:12
7	08:57	14:54 (4)	08:08	06:57	06:31	05:13
	15:48	9	15:03 (4)	17:59	20:08	21:14
8	08:57	14:54 (4)	08:06	06:54	06:28	05:11
	15:49	11	15:05 (4)	18:02	20:10	21:16
9	08:56	14:55 (4)	08:03	06:52	06:25	05:09
	15:51	12	15:07 (4)	18:04	20:12	21:19
10	08:55	14:55 (4)	08:01	06:49	06:23	05:06
	15:53	14	15:09 (4)	18:06	20:15	21:21
11	08:54	14:54 (4)	07:59	06:46	06:20	05:04
	15:55	17	15:11 (4)	18:08	20:17	21:23
12	08:53	14:55 (4)	07:56	06:43	06:17	05:02
	15:57	18	15:13 (4)	18:11	20:19	21:25
13	08:52	14:54 (4)	07:54	06:41	06:14	05:00
	15:58	21	15:15 (4)	18:13	20:21	21:27
14	08:51	14:55 (4)	07:52	06:38	06:12	04:58
	16:00	23	15:18 (4)	18:15	20:24	21:29
15	08:49	14:54 (4)	07:49	16:39 (2)	06:09	04:56
	16:02	24	15:18 (4)	1	16:40 (2)	18:17
16	08:48	14:55 (4)	07:47	16:37 (2)	06:32	06:06
	16:04	24	15:19 (4)	6	16:43 (2)	18:20
17	08:47	14:55 (4)	07:44	16:34 (2)	06:29	06:04
	16:06	24	15:19 (4)	11	16:45 (2)	18:22
18	08:45	14:55 (4)	07:42	16:33 (2)	06:27	06:01
	16:08	24	15:19 (4)	15	16:48 (2)	18:24
19	08:44	14:55 (4)	07:39	16:32 (2)	06:24	05:58
	16:10	25	15:20 (4)	19	16:51 (2)	18:26
20	08:42	14:57 (4)	07:37	16:31 (2)	06:21	05:56
	16:13	24	15:21 (4)	22	16:53 (2)	18:28
21	08:41	14:57 (4)	07:34	16:30 (2)	06:18	05:53
	16:15	24	15:21 (4)	25	16:55 (2)	18:31
22	08:39	14:57 (4)	07:32	16:30 (2)	06:16	05:50
	16:17	24	15:21 (4)	26	16:56 (2)	18:33
23	08:38	14:58 (4)	07:29	16:29 (2)	06:13	05:48
	16:19	23	15:21 (4)	27	16:56 (2)	18:35
24	08:36	14:59 (4)	07:26	16:29 (2)	06:10	05:45
	16:21	22	15:21 (4)	27	16:56 (2)	18:37
25	08:34	15:00 (4)	07:24	16:30 (2)	06:07	05:43
	16:24	20	15:20 (4)	26	16:56 (2)	18:39
26	08:32	15:01 (4)	07:21	16:29 (2)	06:04	05:40
	16:26	19	15:20 (4)	27	16:56 (2)	18:42
27	08:31	15:01 (4)	07:19	16:29 (2)	06:02	05:37
	16:28	17	15:18 (4)	26	16:55 (2)	18:44
28	08:29	15:03 (4)	07:16	16:30 (2)	05:59	05:35
	16:30	15	15:18 (4)	24	16:54 (2)	18:46
29	08:27	15:05 (4)	17:43	06:56	05:32	04:31
	16:33	11	15:16 (4)	19:48	20:57	21:58
30	08:25	15:08 (4)	17:40	06:53	05:30	04:29
	16:35	6	15:14 (4)	19:50	20:59	21:59
31	08:23			06:50		04:28
	16:37			19:53		22:01
Potential sun hours	227	262	365	429	515	539
Total, worst case	465	282	69			
Sun reduction	0.11	0.19	0.40			
Oper. time red.	1.00	1.00	1.00			
Wind dir. red.	1.00	1.00	1.00			
Total reduction	0.11	0.19	0.40			
Total, real	51	55	28			

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vidini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (503)
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 16:29	08:35 15:36
3	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48		07:32 16:27	08:36 15:35
4	04:22 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 15:32
7	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37		07:41 16:18	08:43 15:32
8	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34		07:43 16:16	08:44 15:31
9	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	6	07:46 17:14 (2)	08:46 15:31
10	04:30 22:12	05:28 21:14	06:34 19:52	07:38 18:28	14	07:48 17:20 (2)	08:47 15:30
11	04:31 22:11	05:30 21:12	06:36 19:49	07:40 18:26	17	07:50 17:24 (2)	08:49 15:30
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	21	07:53 17:25 (2)	08:50 14:39 (4)
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	23	07:55 17:27 (2)	08:51 14:45 (4)
14	04:36 22:07	05:36 21:05	06:42 19:41	07:47 18:18	25	07:57 17:29 (2)	08:52 14:48 (4)
15	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	26	07:59 17:01 (2)	08:53 14:35 (4)
16	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	27	08:02 17:28 (2)	08:54 14:51 (4)
17	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	27	08:04 17:01 (2)	08:55 14:34 (4)
18	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	27	08:06 17:28 (2)	08:56 14:32 (4)
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	27	08:08 17:00 (2)	08:57 14:55 (4)
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	26	08:10 17:26 (2)	08:58 14:32 (4)
21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	25	08:13 17:01 (2)	08:58 14:56 (4)
22	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	25	08:15 17:01 (2)	08:59 14:33 (4)
23	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	21	08:17 17:22 (2)	08:59 14:57 (4)
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	18	08:19 17:03 (2)	09:00 14:32 (4)
25	04:55 21:49	06:00 20:36	07:05 19:10	08:11 16:49	14	08:21 17:17 (2)	09:00 14:56 (4)
26	04:57 21:47	06:02 20:33	07:08 19:07	08:14 16:46	10	08:23 16:05 (2)	09:00 14:33 (4)
27	04:59 21:45	06:04 20:31	07:10 19:04	08:16 16:44	5	08:25 16:12 (2)	09:01 14:57 (4)
28	05:01 21:43	06:06 20:28	07:12 19:02	08:18 16:41	23	08:27 15:41	09:01 14:34 (4)
29	05:03 21:41	06:08 20:25	07:14 18:59	08:20 16:39	24	08:29 15:39	09:01 14:58 (4)
30	05:05 21:39	06:10 20:23	07:16 18:56	08:23 16:37	21	08:31 15:38	09:01 14:35 (4)
31	05:07 21:37	06:13 20:20	07:25 16:34	08:25 16:34	19	09:00 15:38	09:00 15:37
Potential sun hours	538	474	386	321		241	207
Total, worst case				358		391	76
Sun reduction				0.28		0.08	0.06
Oper. time red.				1.00		1.00	1.00
Wind dir. red.				1.00		1.00	1.00
Total reduction				0.28		0.08	0.06
Total, real				101		31	5

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vienibas gatve 6 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (574)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vienibas gatve 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (576)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Veverzemnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (586)
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	08:21			07:13	16:16 (11)	06:48		18:32 (12)	05:28	19:48 (4)	04:27
	15:39	16:40			17:46	40 16:56 (11)	19:55	26	18:58 (12)	21:01	20:18 (4)	22:02
2	09:00	08:19			07:11	16:15 (11)	06:45		18:33 (12)	05:25	19:46 (4)	04:26
	15:41	16:42			17:48	41 16:56 (11)	19:57	24	18:57 (12)	21:03	20:18 (4)	22:04
3	08:59	08:17			07:08	16:14 (11)	06:42		18:34 (12)	05:23	19:45 (4)	04:24
	15:42	16:45			17:50	42 16:56 (11)	19:59	21	18:55 (12)	21:05	20:19 (4)	22:05
4	08:59	08:14			07:05	16:14 (11)	06:39		18:35 (12)	05:20	19:45 (4)	04:23
	15:43	16:47			17:53	42 16:56 (11)	20:01	18	18:53 (12)	21:08	20:20 (4)	22:07
5	08:58	08:12			07:03	16:13 (11)	06:36		18:38 (12)	05:18	19:44 (4)	04:22
	15:45	16:49			17:55	43 16:56 (11)	20:04	12	18:50 (12)	21:10	20:20 (4)	22:08
6	08:58	08:10			07:00	16:14 (11)	06:34			05:16	19:43 (4)	04:21
	15:46	16:52			17:57	42 16:56 (11)	20:06			21:12	20:20 (4)	22:09
7	08:57	08:08			06:57	16:14 (11)	06:31			05:13	19:42 (4)	04:20
	15:48	16:54			17:59	42 16:56 (11)	20:08			21:14	20:20 (4)	22:11
8	08:56	08:06			06:54	16:13 (11)	06:28		19:39 (14)	05:11	19:42 (4)	04:19
	15:50	16:56			18:02	42 16:55 (11)	20:10	1	19:40 (14)	21:16	20:21 (4)	22:12
9	08:56	08:03			06:52	16:13 (11)	06:25		19:36 (14)	05:09	19:42 (4)	04:19
	15:51	16:59			18:04	41 16:54 (11)	20:12	7	19:43 (14)	21:19	20:21 (4)	22:13
10	08:55	08:01			06:49	16:14 (11)	06:23		19:33 (14)	05:06	19:42 (4)	04:18
	15:53	17:01			18:06	39 16:53 (11)	20:15	11	19:44 (14)	21:21	20:21 (4)	22:14
11	08:54	07:59			06:46	16:15 (11)	06:20		19:31 (14)	05:04	19:41 (4)	04:17
	15:55	17:03			18:08	38 16:53 (11)	20:17	15	19:46 (14)	21:23	20:21 (4)	22:15
12	08:53	07:56			06:43	16:15 (11)	06:17		19:31 (14)	05:02	19:41 (4)	04:17
	15:57	17:06			18:11	37 16:52 (11)	20:19	18	19:49 (14)	21:25	20:21 (4)	22:16
13	08:52	07:54			06:41	16:16 (11)	06:14		19:29 (14)	05:00	19:41 (4)	04:16
	15:59	17:08			18:13	35 16:51 (11)	20:21	22	19:51 (14)	21:27	20:21 (4)	22:17
14	08:50	07:52			06:38	16:17 (11)	06:12		19:28 (14)	04:58	19:41 (4)	04:16
	16:00	17:11			18:15	32 16:49 (11)	20:24	24	19:52 (14)	21:29	20:21 (4)	22:17
15	08:49	07:49			06:35	16:18 (11)	06:09		19:28 (14)	04:56	19:42 (4)	04:15
	16:02	17:13			18:17	29 16:47 (11)	20:26	24	19:52 (14)	21:31	20:22 (4)	22:18
16	08:48	07:47			06:32	16:19 (11)	06:06		19:27 (14)	04:54	19:42 (4)	04:15
	16:04	17:15			18:20	26 16:45 (11)	20:28	25	19:52 (14)	21:33	20:21 (4)	22:19
17	08:47	07:44			06:29	16:22 (11)	06:04		19:28 (14)	04:52	19:42 (4)	04:15
	16:06	17:18			18:22	22 17:53 (13)	20:30	24	19:52 (14)	21:35	20:21 (4)	22:19
18	08:45	07:42			06:27	16:25 (11)	06:01		19:27 (14)	04:50	19:42 (4)	04:15
	16:08	17:20			18:24	26 17:55 (13)	20:32	24	19:51 (14)	21:37	20:20 (4)	22:20
19	08:44	07:39			06:24	17:40 (12)	05:58		19:27 (14)	04:48	19:43 (4)	04:15
	16:11	17:22			18:26	17 17:57 (13)	20:35	23	19:50 (14)	21:39	20:21 (4)	22:20
20	08:42	07:37		16:31 (11)	06:21	17:37 (12)	05:56		19:28 (14)	04:46	19:43 (4)	04:15
	16:13	17:25	11	16:42 (11)	18:28	22 17:59 (13)	20:37	22	19:50 (14)	21:41	20:20 (4)	22:21
21	08:41	07:34		16:27 (11)	06:18	17:36 (12)	05:53		19:28 (14)	04:44	19:43 (4)	04:15
	16:15	17:27	19	16:46 (11)	18:31	25 18:01 (13)	20:39	20	19:48 (14)	21:43	20:19 (4)	22:21
22	08:39	07:32		16:25 (11)	06:16	17:34 (12)	05:50		19:30 (14)	04:42	19:44 (4)	04:15
	16:17	17:29	24	16:49 (11)	18:33	29 18:03 (13)	20:41	17	19:47 (14)	21:45	20:20 (4)	22:21
23	08:38	07:29		16:22 (11)	06:13	17:34 (12)	05:48		19:31 (14)	04:40	19:44 (4)	04:15
	16:19	17:32	28	16:50 (11)	18:35	31 18:05 (13)	20:43	14	19:45 (14)	21:47	20:19 (4)	22:21
24	08:36	07:26		16:21 (11)	06:10	17:33 (12)	05:45		19:33 (14)	04:39	19:45 (4)	04:16
	16:21	17:34	30	16:51 (11)	18:37	32 18:05 (13)	20:46	10	19:43 (14)	21:49	20:19 (4)	22:21
25	08:34	07:24		16:20 (11)	06:07	17:32 (12)	05:43			04:37	19:47 (4)	04:16
	16:24	17:36	33	16:53 (11)	18:39	32 18:04 (13)	20:48			21:51	20:19 (4)	22:21
26	08:32	07:21		16:18 (11)	06:04	17:31 (12)	05:40		20:00 (4)	04:35	19:47 (4)	04:16
	16:26	17:39	36	16:54 (11)	18:42	32 18:03 (13)	20:50	6	20:06 (4)	21:52	20:18 (4)	22:21
27	08:31	07:19		16:17 (11)	06:02	17:30 (12)	05:38		19:55 (4)	04:34	19:48 (4)	04:17
	16:28	17:41	38	16:55 (11)	18:44	32 18:02 (13)	20:52	16	20:11 (4)	21:54	20:17 (4)	22:21
28	08:29	07:16		16:16 (11)	05:59	17:31 (12)	05:35		19:52 (4)	04:32	19:49 (4)	04:18
	16:31	17:43	39	16:55 (11)	18:46	31 18:02 (12)	20:54	21	20:13 (4)	21:56	20:17 (4)	22:21
29	08:27				06:56	18:31 (12)	05:32		19:50 (4)	04:31	19:49 (4)	04:18
	16:33				19:48	30 19:01 (12)	20:57	25	20:15 (4)	21:58	20:16 (4)	22:21
30	08:25				06:53	18:31 (12)	05:30		19:49 (4)	04:29	19:50 (4)	04:19
	16:35				19:50	29 19:00 (12)	20:59	27	20:16 (4)	21:59	20:15 (4)	22:20
31	08:23				06:50	18:31 (12)				04:28	19:51 (4)	
	16:37				19:53	28 18:59 (12)				22:01	20:15 (4)	
Potential sun hours	227	262			365		429		515		539	
Total, worst case			258		1029		497		1087		529	
Sun reduction			0.19		0.40		0.43		0.58		0.56	
Oper. time red.			1.00		1.00		1.00		1.00		1.00	
Wind dir. red.			1.00		1.00		1.00		1.00		1.00	
Total reduction			0.19		0.40		0.43		0.58		0.56	
Total, real			50		415		211		632		296	

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Veverzemnieki - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (586)
 Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 0.80 1.82 4.75 6.09 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		21:22 (2)	05:09		19:52 (4)	06:15		19:30 (14)	07:18		16:55 (11)	07:27		08:33									
2	04:21	15	21:37 (2)	21:35	39	20:31 (4)	20:17	15	19:45 (14)	18:53	36	17:31 (11)	16:32		15:37									
3	04:22	14	21:37 (2)	21:33	39	20:31 (4)	20:14	11	19:42 (14)	18:50	38	17:31 (11)	16:29		15:36									
4	04:23	13	21:37 (2)	21:31	39	20:31 (4)	20:12	7	19:40 (14)	18:48	39	17:31 (11)	16:27		15:35									
5	04:24	12	21:36 (2)	21:28	39	20:31 (4)	20:09	1	19:38 (14)	18:45	40	17:31 (11)	16:25		15:34									
6	04:25	15	21:35 (2)	21:26	39	20:31 (4)	20:06			18:42	41	17:32 (11)	16:23		15:33									
7	04:26	19	21:35 (2)	21:24	38	20:31 (4)	20:03			18:39	42	17:32 (11)	16:20		15:33									
8	04:27	20	21:34 (2)	21:22	37	20:30 (4)	20:01	11	18:45 (12)	18:37	42	17:31 (11)	16:18		15:32									
9	04:29	21	21:33 (2)	21:19	35	20:29 (4)	19:58	18	18:48 (12)	18:34	42	17:31 (11)	16:16		15:31									
10	04:30	21	21:32 (2)	21:17	35	20:29 (4)	19:55	21	18:49 (12)	18:31	42	17:31 (11)	16:14		15:31									
11	04:31	19	21:32 (2)	21:14	33	20:28 (4)	19:52	24	18:50 (12)	18:28	42	17:31 (11)	16:12		15:30									
12	04:33	21	21:31 (2)	21:12	31	20:27 (4)	19:49	26	18:51 (12)	18:26	42	17:30 (11)	16:10		15:30									
13	04:34	23	21:30 (2)	21:10	29	20:26 (4)	19:47	28	18:51 (12)	18:23	41	17:29 (11)	16:08		15:29									
14	04:36	25	21:29 (2)	21:07	26	20:23 (4)	19:44	29	18:51 (12)	18:20	40	17:29 (11)	16:06		15:29									
15	04:37	26	21:28 (2)	21:05	24	20:22 (4)	19:41	30	18:51 (12)	18:18	39	17:28 (11)	16:04		15:29									
16	04:39	27	21:27 (2)	21:02	19	20:19 (4)	19:38	30	18:51 (13)	18:15	37	17:26 (11)	16:02		15:29									
17	04:41	29	21:26 (2)	21:00	14	20:17 (4)	19:35	31	18:51 (13)	18:12	35	17:26 (11)	16:00		15:29									
18	04:42	30	21:25 (2)	20:57			19:33	31	18:51 (13)	18:10	33	17:24 (11)	15:58		15:29									
19	04:44	31	21:24 (2)	20:54			19:30	33	18:52 (13)	18:07	30	17:23 (11)	15:56		15:29									
20	04:46	32	21:23 (2)	20:52	11	19:49 (14)	19:27	32	18:51 (13)	18:04	27	17:21 (11)	15:54		15:29									
21	04:48	34	21:22 (2)	20:49	15	19:51 (14)	19:24	32	18:51 (13)	18:02	22	17:18 (11)	15:53		15:29									
22	04:49	35	21:21 (2)	20:47	18	19:52 (14)	19:21	31	18:50 (13)	17:59	17	17:16 (11)	15:51		15:30									
23	04:51	36	21:20 (2)	20:44	20	19:53 (14)	19:18	27	18:48 (13)	17:57	8	17:11 (11)	15:49		15:30									
24	04:53	37	21:19 (2)	20:41	22	19:54 (14)	19:16	23	18:45 (13)	17:54			15:48		15:31									
25	04:55	38	21:18 (2)	20:38	24	19:54 (14)	19:13	19	18:42 (13)	17:51			15:46		15:31									
26	04:57	39	21:17 (2)	20:36	24	19:54 (14)	19:10	24	18:39 (13)	17:49			15:45		15:32									
27	04:59	40	21:16 (2)	20:33	24	19:54 (14)	19:07	27	18:36 (13)	17:46			15:43		15:33									
28	05:01	41	21:15 (2)	20:31	25	19:54 (14)	19:04	24	17:26 (11)	16:44			15:42		15:34									
29	05:03	42	21:14 (2)	20:28	24	19:53 (14)	19:02	28	17:27 (11)	16:41			15:41		15:35									
30	05:05	43	21:13 (2)	20:25	24	19:53 (14)	18:59	31	17:28 (11)	16:39			15:39		15:36									
31	05:07	44	21:12 (2)	20:23	21	19:50 (14)	18:56	34	17:30 (11)	16:37			15:38		15:37									
Potential sun hours	538			474			386			321			241		207									
Total, worst case	867			785			678			775														
Sun reduction	0.47			0.50			0.46			0.28														
Oper. time red.	1.00			1.00			1.00			1.00														
Wind dir. red.	1.00			1.00			1.00			1.00														
Total reduction	0.47			0.50			0.46			0.28														
Total, real	407			396			313			219														

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vež i - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (784)
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	09:01 15:40	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:02	04:27 22:03	04:20 22:20	05:09 21:36	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:37
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:26 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	05:23 21:06	04:25 22:06	04:22 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
4	08:59 15:44	08:15 16:47	07:06 17:53	06:40 20:02	05:21 21:08	04:23 22:07	04:23 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:50	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:18 21:27	06:24 20:07	07:27 18:42	07:37 16:23	08:40 15:34
6	08:58 15:47	08:11 16:52	07:00 17:57	06:34 20:06	05:16 21:13	04:21 22:10	04:25 22:17	05:20 21:24	06:26 20:04	07:29 18:40	07:39 16:21	08:42 15:33
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:14 21:15	04:21 22:11	04:26 22:16	05:22 21:22	06:28 20:01	07:32 18:37	07:42 16:18	08:43 15:32
8	08:57 15:50	08:06 16:57	06:55 18:02	06:29 20:11	05:11 21:17	04:20 22:12	04:28 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:52	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
10	08:55 15:53	08:02 17:01	06:49 18:07	06:23 20:15	05:07 21:21	04:18 22:14	04:30 22:13	05:28 21:15	06:34 19:53	07:38 18:29	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:04	06:47 18:09	06:20 20:17	05:04 21:23	04:18 22:15	04:32 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:57	07:57 17:06	06:44 18:11	06:18 20:20	05:02 21:25	04:17 22:16	04:33 22:11	05:32 21:10	06:38 19:47	07:43 18:23	07:53 16:08	08:50 15:30
13	08:52 15:59	07:54 17:09	06:41 18:13	06:15 20:22	05:00 21:28	04:16 22:17	04:34 22:09	05:34 21:08	06:40 19:44	07:45 18:21	07:55 16:06	08:52 15:29
14	08:51 16:01	07:52 17:11	06:38 18:16	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:37 21:05	06:43 19:41	07:47 18:18	07:58 16:04	08:53 15:29
15	08:50 16:03	07:50 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:16 22:19	04:38 22:07	05:39 21:03	06:45 19:39	07:49 18:15	08:00 16:02	08:54 15:29
16	08:49 16:05	07:47 17:16	06:33 18:20	06:07 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:13	08:02 16:00	08:55 15:29
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:31	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:54 18:10	08:04 15:58	08:56 15:29
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:43 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:07 15:56	08:57 15:29
19	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:05	08:09 15:55	08:57 15:29
20	08:43 16:13	07:37 17:25	06:22 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:30
21	08:41 16:15	07:35 17:27	06:19 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:52 20:47	06:57 19:22	08:03 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	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	08:38 16:20	07:29 17:32	06:13 18:35	05:48 20:44	04:41 21:47	04:16 22:22	04:52 21:53	05:56 20:42	07:02 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:34	06:10 18:38	05:46 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:47	09:00 15:32
25	08:35 16:24	07:24 17:37	06:08 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:37	07:06 19:10	07:12 16:49	08:21 15:45	09:01 15:32
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:51	04:36 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:23 15:44	09:01 15:33
27	08:31 16:29	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:33 21:56	04:18 22:21	05:01 21:44	06:07 20:28	07:12 19:02	07:19 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:19 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:35		06:54 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:39	09:01 15:37
31	08:23 16:38		06:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:35		09:01 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Vež ukrogs - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (797)
 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	09:01	08:21	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:19	07:28	08:33
	15:40	16:40	17:46	19:55	21:02	22:03	22:20	21:35	20:18	18:54	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21	07:30	08:35
	15:41	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30	15:36
3	09:00	08:17	07:08	06:42	05:23	04:25	04:22	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:51	20:00	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:06	06:40	05:21	04:24	04:23	05:15	06:21	07:25	07:35	08:38
	15:44	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:35
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:18	06:24	07:27	07:37	08:40
	15:45	16:50	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:34
6	08:58	08:11	07:00	06:34	05:16	04:21	04:25	05:20	06:26	07:29	07:39	08:42
	15:47	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:21	15:33
7	08:58	08:08	06:57	06:31	05:14	04:21	04:26	05:22	06:28	07:32	07:42	08:43
	15:48	16:54	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:29	05:11	04:20	04:28	05:24	06:30	07:34	07:44	08:45
	15:50	16:57	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:32
9	08:56	08:04	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	07:46	08:46
	15:52	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:07	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:07	20:15	21:21	22:14	22:13	21:15	19:53	18:29	16:12	15:30
11	08:54	07:59	06:47	06:20	05:05	04:18	04:32	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:18	05:02	04:17	04:33	05:32	06:38	07:43	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:30
13	08:52	07:54	06:41	06:15	05:00	04:16	04:35	05:34	06:40	07:45	07:55	08:51
	15:59	17:09	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:21	16:06	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:37	06:43	07:47	07:58	08:53
	16:01	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:50	06:35	06:09	04:56	04:16	04:38	05:39	06:45	07:49	08:00	08:54
	16:03	17:13	18:18	20:26	21:32	22:19	22:06	21:02	19:39	18:15	16:02	15:29
16	08:48	07:47	06:33	06:07	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:05	17:16	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:13	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:41	05:43	06:49	07:54	08:04	08:56
	16:07	17:18	18:22	20:31	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:43	05:45	06:51	07:56	08:06	08:56
	16:09	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:59	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:11	17:23	18:27	20:35	21:40	22:21	22:00	20:52	19:27	18:05	15:55	15:30
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:30
21	08:41	07:35	06:19	05:53	04:44	04:15	04:48	05:52	06:57	08:03	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:22	17:59	15:51	15:30
22	08:40	07:32	06:16	05:51	04:42	04:15	04:50	05:54	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:42	21:46	22:22	21:55	20:44	19:19	17:57	15:50	15:31
23	08:38	07:29	06:13	05:48	04:41	04:16	04:52	05:56	07:02	08:07	08:17	09:00
	16:20	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:46	04:39	04:16	04:53	05:58	07:04	08:09	08:19	09:00
	16:22	17:34	18:38	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:47	15:32
25	08:35	07:24	06:08	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:22	06:05	05:40	04:36	04:17	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:08	16:47	15:44	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:29	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:33	04:18	05:01	06:07	07:12	07:19	08:27	09:01
	16:31	17:44	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
29	08:27		06:56	05:33	04:31	04:19	05:03	06:09	07:14	07:21	08:29	09:01
	16:33		19:49	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:40	15:36
30	08:25		06:54	05:30	04:30	04:19	05:05	06:11	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:39	15:37
31	08:23		06:51		04:28		05:07	06:13		07:25		09:01
	16:38		19:53		22:01		21:38	20:20		16:35		15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valke_Vestas172 Shadow receptor: Viteni - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (487)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (657)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 10 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (667)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
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12	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 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 12 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (650) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
0.80 1.82 4.75 6.09 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 14 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (677)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 16 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (669)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
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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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 1B - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (655)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:46	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 3A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (644)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
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29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 3B - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (670) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
0.80 1.82 4.75 6.09 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (673)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
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	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
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	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:46	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
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28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
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	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (654)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
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	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
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	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
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	16:00	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:52	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:46	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zala iela 8 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (659)
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	09:01	08:21	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33
	15:39	16:40	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37
2	09:00	08:19	07:11	06:45	05:25	04:25	04:20	05:11	06:17	07:21	07:30	08:35
	15:40	16:42	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:29	15:36
3	09:00	08:17	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	07:32	08:37
	15:42	16:44	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35
4	08:59	08:15	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	07:35	08:38
	15:43	16:47	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34
5	08:59	08:13	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40
	15:45	16:49	17:55	20:04	21:10	22:09	22:18	21:27	20:06	18:42	16:23	15:33
6	08:58	08:10	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29	07:39	08:42
	15:46	16:52	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:39	16:20	15:32
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	16:54	17:59	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	08:06	06:55	06:28	05:11	04:19	04:27	05:23	06:30	07:34	07:44	08:45
	15:49	16:56	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31
9	08:56	08:04	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31
10	08:55	08:01	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48	08:48
	15:53	17:01	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:28	16:12	15:30
11	08:54	07:59	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:51	08:49
	15:55	17:04	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30
12	08:53	07:57	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53	08:50
	15:57	17:06	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29
13	08:52	07:54	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45	07:55	08:51
	15:58	17:08	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:05	15:29
14	08:51	07:52	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57	08:53
	16:00	17:11	18:15	20:24	21:30	22:18	22:08	21:05	19:41	18:18	16:04	15:29
15	08:50	07:49	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:00	08:54
	16:02	17:13	18:17	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29
16	08:48	07:47	06:32	06:06	04:54	04:15	04:39	05:41	06:47	07:51	08:02	08:55
	16:04	17:15	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29
17	08:47	07:45	06:30	06:04	04:51	04:15	04:40	05:43	06:49	07:53	08:04	08:56
	16:06	17:18	18:22	20:30	21:36	22:20	22:04	20:57	19:33	18:10	15:58	15:29
18	08:46	07:42	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:56	08:06	08:57
	16:08	17:20	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29
19	08:44	07:40	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:09	08:57
	16:10	17:22	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29
20	08:43	07:37	06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:11	08:58
	16:13	17:25	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53	15:29
21	08:41	07:34	06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:13	08:59
	16:15	17:27	18:31	20:39	21:44	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:05	08:15	08:59
	16:17	17:30	18:33	20:41	21:46	22:22	21:55	20:44	19:19	17:57	15:49	15:30
23	08:38	07:29	06:13	05:48	04:40	04:15	04:51	05:56	07:01	08:07	08:17	09:00
	16:19	17:32	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48	15:31
24	08:36	07:27	06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:19	09:00
	16:21	17:34	18:37	20:46	21:49	22:22	21:52	20:39	19:13	17:51	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21	09:00
	16:24	17:37	18:40	20:48	21:51	22:22	21:50	20:36	19:10	17:49	15:45	15:32
26	08:33	07:21	06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23	09:01
	16:26	17:39	18:42	20:50	21:53	22:22	21:48	20:34	19:07	17:46	15:43	15:33
27	08:31	07:19	06:02	05:38	04:34	04:17	04:59	06:04	07:10	07:16	08:25	09:01
	16:28	17:41	18:44	20:53	21:55	22:22	21:46	20:31	19:05	17:44	15:42	15:34
28	08:29	07:16	05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27	09:01
	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	17:41	15:41	15:34
29	08:27		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:21	08:29	09:01
	16:33		19:48	20:57	21:58	22:21	21:42	20:26	18:59	17:39	15:39	15:35
30	08:25		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31	09:01
	16:35		19:51	20:59	22:00	22:21	21:40	20:23	18:56	17:37	15:38	15:37
31	08:23		06:50		04:28		05:07	06:13		07:25		09:01
	16:37		19:53		22:01		21:38	20:20		16:34		15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

Calculation: Flickering_Valke_Vestas172 Shadow receptor: Zeltini - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (476)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemdegas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (450)
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 24	14:14 (4) 14:38 (4) 16:40	08:21 16:03 (2) 17:46	07:13 15:55 (2) 17:11	06:48 15:55 (2) 17:46	05:27 15:55 (2) 17:46	04:27 15:55 (2) 17:46	04:20 15:55 (2) 17:46	05:09 15:55 (2) 17:46	06:15 15:55 (2) 17:46	07:18 15:55 (2) 17:46	08:18 15:55 (2) 17:46
2	09:00 15:41 24	14:14 (4) 14:38 (4) 16:42	08:19 16:06 (2) 17:48	07:11 15:54 (2) 17:08	06:45 15:54 (2) 17:08	05:25 15:54 (2) 17:08	04:25 15:54 (2) 17:08	04:21 15:54 (2) 17:08	05:11 15:54 (2) 17:08	06:17 15:54 (2) 17:08	07:20 15:54 (2) 17:08	08:25 15:54 (2) 17:08
3	09:00 15:42 24	14:15 (4) 14:39 (4) 16:44	08:17 16:09 (2) 17:50	07:08 15:53 (2) 17:05	06:42 15:53 (2) 17:05	05:23 15:53 (2) 17:05	04:24 15:53 (2) 17:05	04:21 15:53 (2) 17:05	05:13 15:53 (2) 17:05	06:19 15:53 (2) 17:05	07:23 15:53 (2) 17:05	08:30 15:53 (2) 17:05
4	08:59 15:43 23	14:16 (4) 14:39 (4) 16:47	08:15 16:11 (2) 17:53	07:05 15:52 (2) 17:03	06:39 15:52 (2) 17:03	05:20 15:52 (2) 17:03	04:23 15:52 (2) 17:03	04:22 15:52 (2) 17:03	05:15 15:52 (2) 17:03	06:21 15:52 (2) 17:03	07:25 15:52 (2) 17:03	08:34 15:52 (2) 17:03
5	08:59 15:45 23	14:16 (4) 14:39 (4) 16:49	08:12 16:14 (2) 17:55	07:03 15:51 (2) 17:00	06:36 15:51 (2) 17:00	05:18 15:51 (2) 17:00	04:22 15:51 (2) 17:00	04:24 15:51 (2) 17:00	05:17 15:51 (2) 17:00	06:23 15:51 (2) 17:00	07:27 15:51 (2) 17:00	08:40 15:51 (2) 17:00
6	08:58 15:46 22	14:17 (4) 14:39 (4) 16:52	08:10 16:16 (2) 17:57	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
7	08:57 15:48 23	14:17 (4) 14:40 (4) 16:54	08:08 16:18 (2) 17:59	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
8	08:57 15:49 22	14:18 (4) 14:40 (4) 16:56	08:06 16:18 (2) 18:02	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
9	08:56 15:51 21	14:19 (4) 14:40 (4) 16:59	08:03 16:19 (2) 18:04	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
10	08:55 15:53 21	14:20 (4) 14:41 (4) 17:01	08:01 16:18 (2) 18:06	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
11	08:54 15:55 20	14:20 (4) 14:40 (4) 17:03	07:59 16:19 (2) 18:08	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
12	08:53 15:57 19	14:21 (4) 14:40 (4) 17:06	07:56 16:19 (2) 18:11	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
13	08:52 15:58 18	14:22 (4) 14:40 (4) 17:08	07:54 16:19 (2) 18:13	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
14	08:51 16:00 17	14:23 (4) 14:40 (4) 17:11	07:52 16:18 (2) 18:15	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
15	08:49 16:02 15	14:24 (4) 14:39 (4) 17:13	07:49 16:17 (2) 18:17	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
16	08:48 16:04 13	14:26 (4) 14:39 (4) 17:15	07:47 16:17 (2) 18:20	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
17	08:47 16:06 9	14:28 (4) 14:37 (4) 17:18	07:44 16:16 (2) 18:22	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
18	08:45 16:08 2	14:32 (4) 14:34 (4) 17:20	07:42 16:15 (2) 18:24	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
19	08:44 16:10 1	14:34 (4) 14:39 (4) 17:23	07:39 16:13 (2) 18:26	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
20	08:42 16:13 1	14:35 (4) 14:40 (4) 17:25	07:37 16:13 (2) 18:28	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
21	08:41 16:15 1	14:36 (4) 14:40 (4) 17:27	07:35 16:14 (2) 18:31	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
22	08:39 16:17 1	14:37 (4) 14:40 (4) 17:29	07:33 16:15 (2) 18:33	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
23	08:38 16:19 1	14:38 (4) 14:40 (4) 17:32	07:31 16:16 (2) 18:35	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
24	08:36 16:21 1	14:39 (4) 14:40 (4) 17:34	07:29 16:17 (2) 18:37	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
25	08:34 16:24 1	14:40 (4) 14:40 (4) 17:36	07:27 16:18 (2) 18:39	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
26	08:32 16:26 1	14:41 (4) 14:40 (4) 17:39	07:25 16:19 (2) 18:42	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
27	08:31 16:28 1	14:42 (4) 14:40 (4) 17:41	07:23 16:20 (2) 18:44	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
28	08:29 16:30 1	14:43 (4) 14:40 (4) 17:43	07:21 16:21 (2) 18:46	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
29	08:27 16:33 1	14:44 (4) 14:40 (4) 17:45	07:19 16:22 (2) 18:48	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
30	08:25 16:35 1	14:45 (4) 14:40 (4) 17:47	07:17 16:23 (2) 18:51	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
31	08:23 16:37 1	14:46 (4) 14:40 (4) 17:49	07:15 16:24 (2) 18:53	07:00 15:51 (2) 17:06	06:34 15:51 (2) 17:06	05:15 15:51 (2) 17:06	04:21 15:51 (2) 17:06	04:25 15:51 (2) 17:06	05:19 15:51 (2) 17:06	06:25 15:51 (2) 17:06	07:29 15:51 (2) 17:06	08:41 15:51 (2) 17:06
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case	341	440	429	515	539	538	474	386	321	241	207	724
Sun reduction	0.11	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.06
Oper. time red.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Wind dir. red.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total reduction	0.11	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.06
Total, real	37	86	429	515	539	538	474	386	321	241	207	45

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 11 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (744)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 12 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (757)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 13 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (734)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
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17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
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28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 13A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (692)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 14 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (726)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
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17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:56 15:29
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20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 15 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (688)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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14	08:51 16:00	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	08:53 15:29
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17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 16 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (719)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 17 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (685)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 17A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (766)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 18 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (745)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 19 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (699)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 19A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (716)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:11	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
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26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 20 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (708)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	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	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 22 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (721)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
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13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
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19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
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21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
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	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
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Total, worst case												
Sun reduction												
Oper. time red.												
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Total reduction												
Total, real												

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

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SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 24 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (697)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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14	08:51 16:00	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	08:53 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 28 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (730)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (540)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 30 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (725)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 31 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (678)
 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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
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Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 34 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (717)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
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14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 36 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (702)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 38 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (737)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
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29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgaļes iela 4 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (508)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 20:22	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 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 40 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (700)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 56 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (680)
 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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgales iela 56A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (674)
 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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 58 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (672)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:10	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
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27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 6 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (512)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
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14	08:51 16:00	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	08:53 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 60 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (671)
 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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
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14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
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31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 6A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (561)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:28 16:32	08:33 15:37
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23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (539)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgailes iela 8 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (555)
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	09:01 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:08	04:24 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	04:34 22:09	05:34 21:07	06:40 19:44	07:45 18:20	07:55 16:05	08:51 15:29
14	08:51 16:00	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	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		05:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemgali - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (477)
 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 16:40	07:13 17:46	06:47 19:55	05:27 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 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:22 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:23 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
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6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:14	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:19 22:13	04:28 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:10	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	17:43 (4) 17:44 (4)	06:14 20:21	05:00 21:27	04:16 22:17	05:34 22:09	06:40 19:44	07:44 18:20	07:55 16:05	08:51 15:29
14	08:50 16:00	07:52 17:11	06:38 18:15	17:40 (4) 17:46 (4)	06:12 20:23	04:58 21:29	04:16 22:17	05:36 21:05	06:42 19:41	07:46 18:18	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	17:37 (4) 17:48 (4)	06:09 20:26	04:56 21:31	04:15 22:18	05:38 21:02	06:44 19:38	07:49 18:15	07:59 16:02	08:53 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	17:36 (4) 17:50 (4)	06:06 20:28	04:54 21:33	04:15 22:19	05:40 22:05	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	17:36 (4) 17:53 (4)	06:04 20:30	04:51 21:35	04:15 22:19	05:43 20:57	06:48 19:32	18:27 (4) 18:35 (4)	07:53 18:10	08:55 15:58
18	08:45 16:08	07:42 17:20	06:27 18:24	17:35 (4) 17:55 (4)	06:01 20:32	04:50 21:37	04:15 22:20	05:42 20:54	06:51 19:30	18:24 (4) 18:37 (4)	07:55 18:07	08:56 15:56
19	08:44 16:10	07:39 17:22	06:24 18:26	17:34 (4) 17:56 (4)	05:58 20:35	04:48 21:39	04:15 22:20	05:47 20:52	06:53 19:27	13 16	18:37 (4) 18:38 (4)	15:56 15:54
20	08:42 16:13	07:37 17:25	06:21 18:28	17:33 (4) 17:55 (4)	05:56 20:37	04:46 21:41	04:15 22:21	05:49 21:58	06:55 19:24	16 19	18:20 (4) 18:39 (4)	08:00 18:02
21	08:41 16:15	07:34 17:27	06:18 18:31	17:33 (4) 17:55 (4)	05:53 20:39	04:44 21:43	04:15 22:21	05:51 20:47	06:57 19:21	20 20	18:19 (4) 18:39 (4)	08:02 17:59
22	08:39 16:17	07:32 17:29	06:15 18:33	17:33 (4) 17:54 (4)	05:50 20:41	04:42 21:45	04:15 22:21	05:53 20:44	06:59 19:18	20 21	18:18 (4) 18:39 (4)	08:04 17:56
23	08:38 16:19	07:29 17:32	06:13 18:35	17:34 (4) 17:54 (4)	05:48 20:43	04:40 21:47	04:15 22:21	05:55 20:41	07:01 19:16	21 22	18:18 (4) 18:40 (4)	08:07 17:54
24	08:36 16:21	07:26 17:34	06:10 18:37	17:35 (4) 17:52 (4)	05:45 20:46	04:39 21:49	04:15 22:21	05:58 21:51	07:03 19:13	22 22	18:18 (4) 18:40 (4)	08:09 17:51
25	08:34 16:24	07:24 17:36	06:07 18:39	17:36 (4) 17:50 (4)	05:43 20:48	04:37 21:51	04:16 22:21	06:00 20:36	07:05 19:10	22 22	18:17 (4) 18:39 (4)	07:11 16:49
26	08:32 16:26	07:21 17:39	06:04 18:42	17:38 (4) 17:47 (4)	05:40 20:50	04:35 21:52	04:16 22:21	06:02 20:33	07:07 19:07	19 19	18:17 (4) 18:36 (4)	07:13 16:46
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	16 16	18:17 (4) 18:33 (4)	07:16 16:44
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	12 12	18:18 (4) 18:30 (4)	07:18 16:41
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	8 8	18:19 (4) 18:27 (4)	07:20 16:39
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	4 4	18:21 (4) 18:25 (4)	07:23 16:37
31	08:23 16:37		06:50 19:53	04:28 22:01	04:28 22:01	05:07 21:37	05:07 21:37	06:12 20:20	07:25 16:34		07:25 16:34	09:00 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case			216						222			
Sun reduction			0.40						0.46			
Oper. time red.			1.00						1.00			
Wind dir. red.			1.00						1.00			
Total reduction			0.40						0.46			
Total, real			87						103			

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemites - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (485)
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	14:50 (4)	08:21		07:13	16:29 (2)	06:48	05:27	04:27
	15:39	3 14:53 (4)	16:40		17:46	21 16:50 (2)	19:55	21:01	22:02
2	09:00	14:50 (4)	08:19		07:11	16:30 (2)	06:45	05:25	04:25
	15:41	4 14:54 (4)	16:42		17:48	18 16:48 (2)	19:57	21:03	22:04
3	09:00	14:51 (4)	08:17		07:08	16:32 (2)	06:42	05:23	04:24
	15:42	5 14:56 (4)	16:44		17:50	13 16:45 (2)	19:59	21:06	22:05
4	08:59	14:50 (4)	08:15		07:05	16:37 (2)	06:39	05:20	04:23
	15:43	8 14:58 (4)	16:47		17:53	3 16:40 (2)	20:01	21:08	22:07
5	08:59	14:50 (4)	08:12		07:03		06:36	05:18	04:22
	15:45	9 14:59 (4)	16:49		17:55		20:04	21:10	22:08
6	08:58	14:50 (4)	08:10		07:00		06:34	05:15	04:21
	15:46	11 15:01 (4)	16:52		17:57		20:06	21:12	22:09
7	08:57	14:50 (4)	08:08		06:57		06:31	05:13	04:20
	15:48	13 15:03 (4)	16:54		17:59		20:08	21:14	22:11
8	08:57	14:50 (4)	08:06		06:54		06:28	05:11	04:19
	15:49	15 15:05 (4)	16:56		18:02		20:10	21:16	22:12
9	08:56	14:50 (4)	08:03		06:52		06:25	05:09	04:18
	15:51	17 15:07 (4)	16:59		18:04		20:12	21:19	22:13
10	08:55	14:51 (4)	08:01		06:49		06:23	05:06	04:18
	15:53	18 15:09 (4)	17:01		18:06		20:15	21:21	22:14
11	08:54	14:50 (4)	07:59		06:46		06:20	05:04	04:17
	15:55	21 15:11 (4)	17:03		18:08		20:17	21:23	22:15
12	08:53	14:51 (4)	07:56		06:43		06:17	05:02	04:17
	15:57	22 15:13 (4)	17:06		18:11		20:19	21:25	22:16
13	08:52	14:50 (4)	07:54		06:41		06:14	05:00	04:16
	15:58	24 15:14 (4)	17:08		18:13		20:21	21:27	22:17
14	08:51	14:51 (4)	07:52	16:37 (2)	06:38		06:12	04:58	04:16
	16:00	24 15:15 (4)	17:11	1 16:38 (2)	18:15		20:24	21:29	22:18
15	08:49	14:51 (4)	07:49	16:33 (2)	06:35		06:09	04:56	04:15
	16:02	24 15:15 (4)	17:13	7 16:40 (2)	18:17		20:26	21:31	22:18
16	08:48	14:52 (4)	07:47	16:32 (2)	06:32		06:06	04:53	04:15
	16:04	24 15:16 (4)	17:15	11 16:43 (2)	18:20		20:28	21:33	22:19
17	08:47	14:52 (4)	07:44	16:30 (2)	06:29		06:04	04:51	04:15
	16:06	24 15:16 (4)	17:18	15 16:45 (2)	18:22		20:30	21:35	22:20
18	08:45	14:52 (4)	07:42	16:29 (2)	06:27		06:01	04:50	04:15
	16:08	24 15:16 (4)	17:20	19 16:48 (2)	18:24		20:32	21:37	22:20
19	08:44	14:52 (4)	07:39	16:28 (2)	06:24		05:58	04:48	04:15
	16:10	24 15:16 (4)	17:22	23 16:51 (2)	18:26		20:35	21:39	22:21
20	08:42	14:53 (4)	07:37	16:27 (2)	06:21		05:56	04:46	04:15
	16:13	24 15:17 (4)	17:25	26 16:53 (2)	18:28		20:37	21:41	22:21
21	08:41	14:54 (4)	07:34	16:26 (2)	06:18		05:53	04:44	04:15
	16:15	23 15:17 (4)	17:27	27 16:53 (2)	18:31		20:39	21:43	22:21
22	08:39	14:54 (4)	07:32	16:27 (2)	06:16		05:50	04:42	04:15
	16:17	23 15:17 (4)	17:29	27 16:54 (2)	18:33		20:41	21:45	22:21
23	08:38	14:55 (4)	07:29	16:26 (2)	06:13		05:48	04:40	04:15
	16:19	22 15:17 (4)	17:32	28 16:54 (2)	18:35		20:43	21:47	22:22
24	08:36	14:56 (4)	07:26	16:26 (2)	06:10		05:45	04:39	04:15
	16:21	21 15:17 (4)	17:34	27 16:53 (2)	18:37		20:46	21:49	22:22
25	08:34	14:57 (4)	07:24	16:27 (2)	06:07		05:43	04:37	04:16
	16:24	19 15:16 (4)	17:36	27 16:54 (2)	18:39		20:48	21:51	22:22
26	08:32	14:58 (4)	07:21	16:27 (2)	06:04		05:40	04:35	04:16
	16:26	18 15:16 (4)	17:39	26 16:53 (2)	18:42		20:50	21:53	22:21
27	08:31	14:59 (4)	07:19	16:27 (2)	06:02		05:37	04:34	04:17
	16:28	15 15:14 (4)	17:41	25 16:52 (2)	18:44		20:52	21:54	22:21
28	08:29	15:01 (4)	07:16	16:28 (2)	05:59		05:35	04:32	04:17
	16:30	12 15:13 (4)	17:43	23 16:51 (2)	18:46		20:55	21:56	22:21
29	08:27	15:04 (4)			06:56		05:32	04:31	04:18
	16:33	7 15:11 (4)			19:48		20:57	21:58	22:21
30	08:25				06:53		05:30	04:29	04:19
	16:35				19:50		20:59	21:59	22:20
31	08:23				06:50			04:28	
	16:37				19:53			22:01	
Potential sun hours	227		262		365		429	515	539
Total, worst case	498		312		55				
Sun reduction	0.11		0.19		0.40				
Oper. time red.	1.00		1.00		1.00				
Wind dir. red.	1.00		1.00		1.00				
Total reduction	0.11		0.19		0.40				
Total, real	54		61		22				

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zemites - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (485)
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 21 14:32 (4) 14:53 (4)
2	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50		07:30 16:29	08:35 15:36 19 14:33 (4) 14:52 (4)
3	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48		07:32 16:27	08:36 15:35 16 14:34 (4) 14:50 (4)
4	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45		07:34 16:25	08:38 15:34 15 14:34 (4) 14:49 (4)
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 13 14:35 (4) 14:48 (4)
6	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39		07:39 16:20	08:41 15:32 11 14:36 (4) 14:47 (4)
7	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37		07:41 16:18	08:43 15:32 10 14:37 (4) 14:47 (4)
8	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34		07:43 16:16	08:44 15:31 8 14:38 (4) 14:46 (4)
9	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31		07:46 16:14	08:46 15:31 5 14:39 (4) 14:44 (4)
10	04:30 22:12	05:28 21:14	06:34 19:52	07:38 18:28	9 17:09 (2)	07:48 16:12	08:47 15:30 4 14:40 (4) 14:44 (4)
11	04:31 22:11	05:30 21:12	06:36 19:49	07:40 18:26	15 17:05 (2)	07:50 16:10	08:49 15:30 3 14:40 (4) 14:43 (4)
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	19 17:04 (2)	07:53 16:07	08:50 15:29 1 14:42 (4) 14:44 (4)
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	21 17:02 (2)	07:55 16:05	14:36 (4) 08:51 14:43 (4) 15:29
14	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	24 17:00 (2)	07:57 16:03	14:34 (4) 08:52 14:46 (4) 15:29
15	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	25 16:59 (2)	07:59 16:02	14:32 (4) 08:53 14:47 (4) 15:29
16	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	26 16:58 (2)	08:02 16:00	14:31 (4) 08:54 14:49 (4) 15:29
17	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	27 16:58 (2)	08:04 15:58	14:30 (4) 08:55 14:49 (4) 15:29
18	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	27 16:58 (2)	08:06 15:56	14:30 (4) 08:56 14:51 (4) 15:29
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	27 16:57 (2)	08:08 15:54	14:29 (4) 08:57 14:51 (4) 15:29
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	27 16:57 (2)	08:10 15:52	14:29 (4) 08:58 14:52 (4) 15:29
21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	26 16:58 (2)	08:13 15:51	14:29 (4) 08:58 14:52 (4) 15:30
22	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:57	26 16:58 (2)	08:15 15:49	14:29 (4) 08:59 14:53 (4) 15:30
23	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	24 16:59 (2)	08:17 15:48	14:29 (4) 08:59 14:53 (4) 15:31
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	21 16:59 (2)	08:19 15:46	14:29 (4) 09:00 14:53 (4) 15:31
25	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	18 16:01 (2)	08:21 15:45	14:30 (4) 09:00 14:54 (4) 15:32
26	04:57 21:47	06:02 20:33	07:08 19:07	07:14 16:46	14 16:15 (2)	08:23 15:43	14:30 (4) 09:00 14:54 (4) 15:33
27	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	10 16:12 (2)	08:25 15:42	14:30 (4) 09:01 14:54 (4) 15:34
28	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	6 16:10 (2)	08:27 15:41	14:31 (4) 09:01 14:55 (4) 15:35
29	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	24 08:29	15:39	14:31 (4) 09:01 14:55 (4) 15:35
30	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	24 08:31	15:37	14:32 (4) 09:01 14:55 (4) 15:37
31	05:07 21:37	06:13 20:20	07:25 16:34	07:25 16:34	23 15:38	09:00	15:37 15:38
Potential sun hours	538	474	386	321	241		207
Total, worst case				367		375	126
Sun reduction				0.28		0.08	0.06
Oper. time red.				1.00		1.00	1.00
Wind dir. red.				1.00		1.00	1.00
Total reduction				0.28		0.08	0.06
Total, real				104		29	8

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zveru ferma - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (585)
 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	08:21	07:13							06:48			19:03 (12)	05:28		19:52 (4)	04:27	
	15:39	16:40	17:46							19:55	21		19:24 (12)	21:01	23	20:15 (4)	22:02	
2	09:00	08:19	07:11							06:45			19:04 (12)	05:25		19:52 (4)	04:25	
	15:41	16:42	17:48							19:57	20		19:24 (12)	21:03	22	20:14 (4)	22:04	
3	08:59	08:17	07:08							06:42			19:04 (12)	05:23		19:53 (4)	04:24	
	15:42	16:44	17:50							19:59	19		19:23 (12)	21:05	21	20:14 (4)	22:05	
4	08:59	08:14	07:05							06:39			19:04 (12)	05:20		19:54 (4)	04:23	
	15:43	16:47	17:53							20:01	18		19:22 (12)	21:08	19	20:13 (4)	22:07	
5	08:58	08:12	07:02							06:36			19:05 (12)	05:18		19:55 (4)	04:22	
	15:45	16:49	17:55							20:04	15		19:20 (12)	21:10	17	20:12 (4)	22:08	
6	08:58	08:10	07:00							06:34			19:07 (12)	05:16		19:56 (4)	04:21	
	15:46	16:52	17:57							20:06	12		19:19 (12)	21:12	13	20:09 (4)	22:09	
7	08:57	08:08	06:57							06:31			19:10 (12)	05:13		19:58 (4)	04:20	
	15:48	16:54	17:59							20:08	5		19:15 (12)	21:14	9	20:07 (4)	22:11	
8	08:56	08:06	06:54							06:28				05:11			04:19	
	15:50	16:56	18:02							20:10				21:16			22:12	
9	08:56	08:03	06:52							06:25				05:09			04:19	
	15:51	16:59	18:04							20:12				21:18			22:13	
10	08:55	08:01	06:49							06:23				05:06			04:18	
	15:53	17:01	18:06							20:15				21:21			22:14	
11	08:54	07:59	06:46							06:20				05:04			04:17	
	15:55	17:03	18:08							20:17				21:23			22:15	
12	08:53	07:56	06:43						17:34 (11)	06:17				05:02			04:17	
	15:57	17:06	18:11	8					17:42 (11)	20:19				21:25			22:16	
13	08:52	07:54	06:41						17:32 (11)	06:14				05:00			04:16	
	15:58	17:08	18:13	12					17:44 (11)	20:21				21:27			22:17	
14	08:50	07:52	06:38						17:30 (11)	06:12				04:58			04:16	
	16:00	17:11	18:15	16					17:46 (11)	20:23				21:29			22:17	
15	08:49	07:49	06:35						17:28 (11)	06:09				04:56			04:15	
	16:02	17:13	18:17	20					17:48 (11)	20:26				21:31			22:18	
16	08:48	07:47	06:32						17:27 (11)	06:06				04:54			04:15	
	16:04	17:15	18:20	23					17:50 (11)	20:28				21:33			22:19	
17	08:47	07:44	06:29						17:27 (11)	06:04				04:52			04:15	
	16:06	17:18	18:22	25					17:52 (11)	20:30				21:35			22:19	
18	08:45	07:42	06:27						17:26 (11)	06:01				04:50			04:15	
	16:08	17:20	18:24	26					17:52 (11)	20:32				21:37			22:20	
19	08:44	07:39	06:24						17:25 (11)	05:58				04:48			04:15	
	16:11	17:22	18:26	27					17:52 (11)	20:35				21:39			22:20	
20	08:42	07:37	06:21						17:25 (11)	05:56			20:00 (4)	04:46			04:15	
	16:13	17:25	18:28	26					17:51 (11)	20:37	5		20:05 (4)	21:41			22:21	
21	08:41	07:34	06:18						17:24 (11)	05:53			19:57 (4)	04:44			04:15	
	16:15	17:27	18:31	27					17:51 (11)	20:39	10		20:07 (4)	21:43			22:21	
22	08:39	07:32	06:15						17:24 (11)	05:50			19:56 (4)	04:42			04:15	
	16:17	17:29	18:33	26					17:50 (11)	20:41	13		20:09 (4)	21:45			22:21	
23	08:38	07:29	06:13						17:25 (11)	05:48			19:54 (4)	04:40			04:15	
	16:19	17:32	18:35	25					17:50 (11)	20:43	17		20:11 (4)	21:47			22:21	
24	08:36	07:26	06:10						17:26 (11)	05:45			19:54 (4)	04:39			04:16	
	16:21	17:34	18:37	22					17:48 (11)	20:46	19		20:13 (4)	21:49			22:21	
25	08:34	07:24	06:07						17:26 (11)	05:43			19:54 (4)	04:37			04:16	
	16:24	17:36	18:39	21					17:47 (11)	20:48	22		20:16 (4)	21:51			22:21	
26	08:32	07:21	06:04						17:28 (11)	05:40			19:52 (4)	04:35			04:16	
	16:26	17:39	18:42	19					18:12 (12)	20:50	24		20:16 (4)	21:52			22:21	
27	08:30	07:19	06:01						17:30 (11)	05:37			19:52 (4)	04:34			04:17	
	16:28	17:41	18:44	19					18:14 (12)	20:52	24		20:16 (4)	21:54			22:21	
28	08:29	07:16	05:59						18:07 (12)	05:35			19:52 (4)	04:32			04:18	
	16:30	17:43	18:46	10					18:17 (12)	20:54	24		20:16 (4)	21:56			22:21	
29	08:27		06:56						19:06 (12)	05:32			19:52 (4)	04:31			04:18	
	16:33		19:48	13					19:19 (12)	20:57	24		20:16 (4)	21:58			22:21	
30	08:25		06:53						19:05 (12)	05:30			19:52 (4)	04:29			04:19	
	16:35		19:50	16					19:21 (12)	20:59	24		20:16 (4)	21:59			22:20	
31	08:23		06:50						19:04 (12)					04:28				
	16:37		19:53	19					19:23 (12)					22:01				
Potential sun hours	227	262	365						429				515			539		
Total, worst case				400					316				124					
Sun reduction				0.40					0.43				0.58					
Oper. time red.				1.00					1.00				1.00					
Wind dir. red.				1.00					1.00				1.00					
Total reduction				0.40					0.43				0.58					
Total, real				161					134				72					

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zveru ferma - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (585)
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	18:12 (11) 18:22 (11)	07:27 16:32
2	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	18:15 (11) 18:19 (11)	16:32 16:29
3	04:22 22:19	05:13 21:31	06:19 20:12	07:22 18:48	18:19 (11)	16:27 15:35
4	04:23 22:18	05:15 21:28	06:21 20:09	07:25 18:45		16:27 15:35
5	04:24 22:17	05:17 21:26	20:11 (4) 20:15 (4)	06:23 20:06	19:07 (12) 19:12 (12)	07:27 18:42
6	04:25 22:16	05:19 21:24	20:08 (4) 20:18 (4)	06:25 20:03	19:03 (12) 19:15 (12)	07:29 18:39
7	04:26 22:15	05:21 21:21	20:06 (4) 20:20 (4)	06:27 20:00	19:01 (12) 19:16 (12)	07:31 18:37
8	04:27 22:14	05:23 21:19	20:04 (4) 20:22 (4)	06:29 19:58	18:59 (12) 19:17 (12)	07:33 18:34
9	04:29 22:13	05:26 21:17	20:03 (4) 20:22 (4)	06:32 19:55	18:58 (12) 19:17 (12)	07:35 18:31
10	04:30 22:12	05:28 21:14	20:02 (4) 20:23 (4)	06:34 19:52	18:57 (12) 19:17 (12)	07:38 18:28
11	04:31 22:11	05:30 21:12	20:02 (4) 20:24 (4)	06:36 19:49	18:57 (12) 19:17 (12)	07:40 18:26
12	04:33 22:10	05:32 21:09	20:00 (4) 20:23 (4)	06:38 19:47	18:56 (12) 19:16 (12)	07:42 18:23
13	04:34 22:09	05:34 21:07	20:00 (4) 20:23 (4)	06:40 19:44	18:56 (12) 19:13 (12)	07:44 18:20
14	04:36 22:07	05:36 21:05	19:59 (4) 20:23 (4)	06:42 19:41	18:56 (12) 19:10 (12)	07:46 18:18
15	04:37 22:06	05:38 21:02	19:59 (4) 20:23 (4)	06:44 19:38	18:56 (12) 19:07 (12)	07:49 18:15
16	04:39 22:04	05:41 20:59	19:59 (4) 20:23 (4)	06:46 19:35	18:20 (11) 19:04 (12)	07:51 18:12
17	04:41 22:03	05:43 20:57	19:59 (4) 20:22 (4)	06:48 19:32	18:17 (11) 19:01 (12)	07:53 18:10
18	04:42 22:01	05:45 20:54	19:59 (4) 20:21 (4)	06:51 19:30	18:14 (11) 18:34 (11)	07:55 18:07
19	04:44 22:00	05:47 20:52	20:00 (4) 20:19 (4)	06:53 19:27	18:13 (11) 18:35 (11)	07:58 18:04
20	04:46 21:58	05:49 20:49	20:00 (4) 20:16 (4)	06:55 19:24	18:11 (11) 18:35 (11)	08:00 18:02
21	04:48 21:56	05:51 20:47	20:01 (4) 20:14 (4)	06:57 19:21	18:10 (11) 18:35 (11)	08:02 17:59
22	04:49 21:55	05:53 20:44	20:02 (4) 20:11 (4)	06:59 19:18	18:09 (11) 18:35 (11)	08:04 17:57
23	04:51 21:53	05:55 20:41	20:04 (4) 20:09 (4)	07:01 19:16	18:09 (11) 18:36 (11)	08:07 17:54
24	04:53 21:51	05:58 20:39	07:03 19:13	18:09 (11) 18:36 (11)	08:09 17:51	17:51 17:51
25	04:55 21:49	06:00 20:36	07:05 19:10	18:08 (11) 18:35 (11)	07:11 16:49	17:11 16:49
26	04:57 21:47	06:02 20:33	07:07 19:07	18:08 (11) 18:34 (11)	07:13 16:46	16:46 16:46
27	04:59 21:45	06:04 20:31	07:10 19:04	18:08 (11) 18:33 (11)	07:16 16:44	16:44 16:44
28	05:01 21:43	06:06 20:28	07:12 19:02	18:09 (11) 18:30 (11)	07:18 16:41	16:41 16:41
29	05:03 21:41	06:08 20:25	07:14 18:59	18:09 (11) 18:27 (11)	07:20 16:39	16:39 16:39
30	05:05 21:39	06:10 20:23	07:16 18:56	18:11 (11) 18:25 (11)	07:23 16:37	16:37 16:37
31	05:07 21:37	06:13 20:20			07:25 16:34	16:34 16:34
Potential sun hours	538	474	386	321	241	207
Total, worst case		333	509	14		
Sun reduction		0.50	0.46	0.28		
Oper. time red.		1.00	1.00	1.00		
Wind dir. red.		1.00	1.00	1.00		
Total reduction		0.50	0.46	0.28		
Total, real		168	235	4		

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zile - 1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (447)
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 15:40	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02	04:20 22:19	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:32 15:37
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	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:29 16:30	08:34 15:36
3	08:59 15:42	08:16 16:45	07:08 17:50	06:42 19:59	05:23 21:05	04:25 22:05	04:22 22:18	05:13 21:30	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:44	08:14 16:47	07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:06	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	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:23	08:39 15:34
6	08:58 15:47	08:10 16:52	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 16:20	08:41 15:33
7	08:57 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:14	04:20 22:10	04:26 22:15	05:22 21:21	06:27 20:00	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:50	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:20 22:12	04:27 22:14	05:24 21:19	06:30 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:55 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:18	04:19 22:13	04:29 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
10	08:54 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 21:14	06:34 19:52	07:38 18:28	07:48 16:12	08:47 15:30
11	08:54 15:55	07:59 17:04	06:46 18:08	06:20 20:17	05:04 21:23	04:18 22:15	04:32 22:11	05:30 21:12	06:36 19:49	07:40 18:26	07:50 16:10	08:48 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 21:09	06:38 19:47	07:42 18:23	07:52 16:08	08:50 15:30
13	08:51 15:59	07:54 17:08	06:41 18:13	06:15 20:21	05:00 21:27	04:16 22:16	04:34 22:08	05:34 21:07	06:40 19:44	07:44 18:20	07:55 16:06	08:51 15:29
14	08:50 16:01	07:51 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:17	04:36 22:07	05:36 21:04	06:42 19:41	07:46 18:18	07:57 16:04	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	04:38 22:06	05:39 21:02	06:44 19:38	07:49 18:15	07:59 16:02	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 22:04	05:41 20:59	06:46 19:35	07:51 18:12	08:01 16:00	08:54 15:29
17	08:47 16:07	07:44 17:18	06:29 18:22	06:04 20:30	04:52 21:35	04:15 22:19	04:41 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
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	04:43 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:11	07:39 17:22	06:24 18:26	05:58 20:34	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:53	08:57 15:30
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	04:48 21:56	05:51 20:47	06:57 19:21	08:02 17:59	08:12 15:51	08:58 15:30
22	08:39 16:17	07:32 17:30	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:50 21:55	05:53 20:44	06:59 19:18	08:04 17:57	08:15 15:49	08:59 15:31
23	08:37 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:41 21:47	04:16 22:21	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	08:36 16:22	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:16 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	08:59 15:32
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:50	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:36 21:52	04:17 22:21	04:57 21:47	06:02 20:33	07:08 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:30 16:28	07:18 17:41	06:02 18:44	05:38 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:28 16:31	07:16 17:43	05:59 18:46	05:35 20:54	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	09:00 15:35
29	08:27 16:33		06:56 19:48	05:33 20:57	04:31 21:57	04:18 22:20	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:40	09:00 15:36
30	08:25 16:35		06:53 19:50	05:30 20:59	04:30 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:00 15:37
31	08:23 16:38		06:50 19:53		04:28 22:01		05:07 21:37	06:13 20:20		07:25 16:34		09:00 15:38
Potential sun hours	228	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zile 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (583)
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 15:40	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02	04:20 22:19	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:32 15:37
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	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:29 16:30	08:34 15:36
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31	08:23 16:38		06:50 19:53		04:28 22:01		05:07 21:37	06:13 20:20		07:25 16:34		09:00 15:38
Potential sun hours	228	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zile 4 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (445)
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 15:40	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	04:27 22:02	04:20 22:19	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	08:32 15:37
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	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:29 16:30	08:34 15:36
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31	08:23 16:38		06:50 19:53		04:28 22:01		05:07 21:37	06:13 20:20		07:25 16:34		09:00 15:38
Potential sun hours	228	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Zitari - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (776)
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	09:01 15:40	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:02	04:27 22:03	04:20 22:20	05:09 21:35	06:15 20:18	07:19 18:54	07:28 16:32	08:33 15:37
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22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:46	04:15 22:22	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	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:41 21:47	04:15 22:22	04:52 21:53	05:56 20:42	07:02 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:22	07:27 17:34	06:10 18:38	05:46 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:04 19:13	08:09 17:52	08:19 15:46	09:00 15:32
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:50	04:36 21:53	04:17 22:22	04:57 21:48	06:02 20:34	07:08 19:08	07:14 16:47	08:23 15:44	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:33 21:56	04:18 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	08:27 16:33		05:56 19:49	05:33 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:09 20:26	07:14 18:59	07:21 16:39	08:29 15:40	09:01 15:36
30	08:25 16:35		05:53 19:51	05:30 20:59	04:30 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:39	09:01 15:37
31	08:23 16:38		05:51 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:35		09:01 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Ares - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (506)
 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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:34 15:36
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:14 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 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	07:36 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:15	05:21 21:21	06:27 20:00	07:31 18:36	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:14	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:18	04:18 22:13	04:28 22:13	05:26 21:17	06:32 19:55	07:35 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:48 15:30
12	08:53 15:56	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 21:09	06:38 19:46	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:50 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:17	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:17	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:19	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:19	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:09	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	04:42 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:21	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:13 16:46	08:23 15:43	09:00 15:33
27	08:30 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:00 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:01	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:36	08:31 15:38	09:00 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Corzemnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (689)
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	09:01 15:39	08:21 16:40	07:14 17:46	06:48 19:55	05:28 21:01	04:27 22:03	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	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:21 22:20	05:11 21:33	06:17 20:15	07:21 18:51	07:30 16:30	08:35 15:36
3	09:00 15:42	08:17 16:45	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:35 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:37 20:04	05:18 21:10	04:22 22:09	04:24 22:18	05:17 21:27	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:04	07:29 18:39	07:39 16:20	08:42 15:32
7	08:58 15:48	08:08 16:54	06:57 18:00	06:31 20:08	05:13 21:15	04:20 22:11	04:26 22:16	05:21 21:22	06:28 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:55 18:02	06:28 20:11	05:11 21:17	04:19 22:12	04:27 22:15	05:24 21:20	06:30 19:58	07:34 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:48 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 22:12	05:30 21:12	06:36 19:50	07:40 18:26	07:51 16:10	08:49 15:30
12	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 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:15 20:22	05:00 21:27	04:16 22:17	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	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:24	04:58 21:30	04:16 22:18	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	07:57 16:04	08:53 15:29
15	08:50 16:02	07:49 17:13	06:35 18:18	06:09 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:54 21:34	04:15 22:19	04:39 22:05	05:41 21:00	06:47 19:36	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:45 17:18	06:30 18:22	06:04 20:30	04:52 21:36	04:15 22:20	04:41 22:04	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:56 18:07	08:06 15:56	08:57 15:29
19	08:44 16:11	07:40 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	08:09 15:54	08:57 15:29
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:50	06:55 19:24	08:00 18:02	08:11 15:53	08:58 15:29
21	08:41 16:15	07:34 17:27	06:18 18:31	05:53 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	06:16 18:33	05:50 20:42	04:42 21:46	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:56 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46	09:00 15:31
25	08:35 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	07:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:55	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:05	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:42	08:27 15:41	09:01 15:35
29	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 20:26	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:36
30	08:25 16:35		06:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:38	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

Flickering_Valka_Vestas172

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

15/01/2026 16:54/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Gerki - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (786)
 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		08:21		09:26 (7)	07:14	07:43 (8)	06:48	07:18 (9)	05:28	06:19 (5)	04:27
	15:40		16:40	37	10:03 (7)	17:46	08:04 (8)	19:55	08:39 (6)	21:01	06:45 (5)	22:03
2	09:00		08:19		09:26 (7)	07:11	07:42 (8)	06:45	07:18 (9)	05:25	06:20 (5)	04:26
	15:41		16:42	38	10:04 (7)	17:48	08:05 (8)	19:57	08:38 (6)	21:04	06:45 (5)	22:04
3	09:00		08:17		09:27 (7)	07:08	07:40 (8)	06:42	07:17 (9)	05:23	06:20 (5)	04:25
	15:42		16:45	37	10:04 (7)	17:51	08:05 (8)	20:00	08:36 (6)	21:06	06:43 (5)	22:06
4	08:59		08:15		09:26 (7)	07:06	07:39 (8)	06:39	07:18 (9)	05:21	06:21 (5)	04:23
	15:44		16:47	38	10:04 (7)	17:53	08:06 (8)	20:02	08:35 (6)	21:08	06:42 (5)	22:07
5	08:59		08:13		09:27 (7)	07:03	07:39 (8)	06:37	07:18 (9)	05:18	06:22 (5)	04:22
	15:45		16:49	37	10:04 (7)	17:55	08:07 (8)	20:04	08:34 (6)	21:10	06:41 (5)	22:08
6	08:58		08:10		09:27 (7)	07:00	07:38 (8)	06:34	07:18 (9)	05:16	06:24 (5)	04:21
	15:47		16:52	38	10:05 (7)	17:57	08:07 (8)	20:06	08:31 (6)	21:12	06:39 (5)	22:10
7	08:58		08:08		09:27 (7)	06:57	07:38 (8)	06:31	07:19 (9)	05:13	06:26 (5)	04:20
	15:48		16:54	37	10:04 (7)	18:00	08:06 (8)	20:08	08:29 (6)	21:15	06:37 (5)	22:11
8	08:57		08:06		09:28 (7)	06:55	07:37 (8)	06:28	07:21 (9)	05:11		04:20
	15:50		16:57	36	10:04 (7)	18:02	08:06 (8)	20:11	08:27 (6)	21:17		22:12
9	08:56		08:04		09:28 (7)	06:52	07:37 (8)	06:26	07:22 (9)	05:09		04:19
	15:52		16:59	36	10:04 (7)	18:04	08:05 (8)	20:13	08:23 (6)	21:19		22:13
10	08:55		08:01		09:29 (7)	06:49	07:38 (8)	06:23		05:07		04:18
	15:53		17:01	35	10:04 (7)	18:06	08:06 (8)	20:15		21:21		22:14
11	08:54		07:59		09:29 (7)	06:46	07:38 (8)	06:20		05:04		04:17
	15:55		17:04	33	10:02 (7)	18:09	08:05 (8)	20:17		21:23		22:15
12	08:53		07:57		09:30 (7)	06:44	07:38 (8)	06:17		05:02		04:17
	15:57		17:06	31	10:01 (7)	18:11	08:03 (8)	20:19		21:25		22:16
13	08:52		07:54		09:31 (7)	06:41	07:39 (8)	06:15		05:00		04:16
	15:59		17:09	30	10:01 (7)	18:13	08:02 (8)	20:22		21:27		22:17
14	08:51		07:52		09:32 (7)	06:38	07:20 (6)	06:12		04:58		04:16
	16:01		17:11	27	09:59 (7)	18:15	08:00 (8)	20:24		21:29		22:18
15	08:50		07:49		09:34 (7)	06:35	07:16 (6)	06:09		04:56		04:16
	16:03		17:13	24	09:58 (7)	18:18	07:59 (8)	20:26		21:32		22:19
16	08:48		07:47		09:36 (7)	06:33	07:12 (6)	06:07		04:54		04:15
	16:05		17:16	19	09:55 (7)	18:20	07:55 (8)	20:28		21:34		22:19
17	08:47		07:45		09:39 (7)	06:30	07:10 (6)	06:04	06:31 (5)	04:52		04:15
	16:07		17:18	13	09:52 (7)	18:22	07:38 (6)	20:30	9	06:40 (5)	21:36	22:20
18	08:46		07:42			06:27	07:08 (6)	06:01	06:28 (5)	04:50		04:15
	16:09	12	09:48 (7)	17:20		18:24	07:39 (6)	20:33	14	06:42 (5)	21:38	22:20
19	08:44		07:40			06:24	07:06 (6)	05:59	06:26 (5)	04:48		04:15
	16:11	16	09:50 (7)	17:23		18:27	07:40 (6)	20:35	18	06:44 (5)	21:40	22:21
20	08:43		07:37			06:21	07:04 (6)	05:56	06:23 (5)	04:46		04:15
	16:13	19	09:52 (7)	17:25		18:29	07:41 (6)	20:37	22	06:45 (5)	21:42	22:21
21	08:41		07:34			06:19	07:04 (6)	05:53	06:22 (5)	04:44		04:15
	16:15	23	09:54 (7)	17:27		18:31	07:42 (6)	20:39	24	06:46 (5)	21:44	22:21
22	08:40		07:32			06:16	07:03 (6)	05:51	06:20 (5)	04:42		04:15
	16:17	25	09:55 (7)	17:30		18:33	07:42 (6)	20:42	26	06:46 (5)	21:45	22:22
23	08:38		07:29			06:13	07:02 (6)	05:48	06:20 (5)	04:41		04:15
	16:19	26	09:56 (7)	17:32		18:35	07:42 (6)	20:44	27	06:47 (5)	21:47	22:22
24	08:36		07:27			06:10	07:01 (6)	05:45	06:19 (5)	04:39		04:16
	16:22	29	09:58 (7)	17:34		18:38	07:42 (6)	20:46	28	06:47 (5)	21:49	22:22
25	08:34		07:24			06:07	07:00 (6)	05:43	06:19 (5)	04:37		04:16
	16:24	31	09:59 (7)	17:37		18:40	07:42 (6)	20:48	28	06:47 (5)	21:51	22:22
26	08:33		07:22			06:05	06:31 (9)	05:40	06:18 (5)	04:36		04:17
	16:26	32	10:00 (7)	17:39		18:42	07:43 (6)	20:50	28	06:46 (5)	21:53	22:22
27	08:31		07:19		07:48 (8)	06:02	06:28 (9)	05:38	06:18 (5)	04:34		04:17
	16:28	33	10:01 (7)	17:41	11	07:59 (8)	07:42 (6)	20:53	29	06:47 (5)	21:55	22:22
28	08:29		07:16		07:46 (8)	05:59	06:25 (9)	05:35	06:18 (5)	04:32		04:18
	16:31	34	10:02 (7)	17:44	16	08:02 (8)	07:42 (6)	20:55	29	06:47 (5)	21:56	22:21
29	08:27		07:14			06:56	07:22 (9)	05:33	06:18 (5)	04:31		04:18
	16:33	36	10:02 (7)			19:49	08:41 (6)	20:57	28	06:46 (5)	21:58	22:21
30	08:25		07:11			06:53	07:19 (9)	05:30	06:18 (5)	04:30		04:19
	16:35	36	10:03 (7)			19:51	08:40 (6)	20:59	27	06:45 (5)	22:00	22:21
31	08:23		07:07			06:51	07:19 (9)			04:28		
	16:38	36	10:03 (7)			19:53	08:40 (6)			22:01		
Potential sun hours	227		262			365		429		515		539
Total, worst case		388		573		1126		792		140		
Sun reduction		0.11		0.19		0.40		0.43		0.58		
Oper. time red.		1.00		1.00		1.00		1.00		1.00		
Wind dir. red.		1.00		1.00		1.00		1.00		1.00		
Total reduction		0.11		0.19		0.40		0.43		0.58		
Total, real		42		111		454		337		81		

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Gerki - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (786)
 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	05:09	06:15	07:19	08:18 (8)	07:28
	22:20	21:35	20:17	18:53	24	08:42 (8)
2	04:21	05:11	06:17	07:21	08:16 (8)	07:30
	22:20	21:33	20:15	18:51	26	08:42 (8)
3	04:22	05:13	06:19	07:23	08:15 (8)	07:32
	22:19	21:31	20:12	18:48	28	08:43 (8)
4	04:23	05:15	06:21	07:25	08:15 (8)	07:35
	22:18	21:29	20:09	18:45	28	08:43 (8)
5	04:24	05:17	06:23	07:27	08:14 (8)	07:37
	22:18	21:26	20:06	18:42	29	08:43 (8)
6	04:25	05:20	06:26	07:29	08:14 (8)	07:39
	22:17	21:24	20:04	18:40	29	08:43 (8)
7	04:26	05:22	06:28	07:31	08:13 (8)	07:41
	22:16	21:22	20:01	18:37	29	08:42 (8)
8	04:27	05:24	06:30	07:34	08:14 (8)	07:44
	22:15	21:20	19:58	18:34	28	08:42 (8)
9	04:29	05:26	06:32	07:36	08:14 (8)	07:46
	22:14	21:17	19:55	18:31	27	08:41 (8)
10	04:30	05:28	06:34	07:38	08:14 (8)	07:48
	22:13	21:15	19:52	18:29	26	08:40 (8)
11	04:32	05:30	06:36	07:40	08:14 (8)	07:51
	22:12	21:12	19:50	18:26	25	08:39 (8)
12	04:33	05:32	06:38	07:42	08:16 (8)	07:53
	22:10	21:10	19:47	18:23	22	08:38 (8)
13	04:34	05:34	06:40	07:45	08:17 (8)	07:55
	22:09	21:07	19:44	18:21	19	08:36 (8)
14	04:36	05:37	06:42	07:47	08:18 (8)	07:57
	22:08	21:05	19:41	18:18	15	08:33 (8)
15	04:38	05:39	06:45	07:49	08:22 (8)	08:00
	22:06	21:02	19:38	18:15	8	08:30 (8)
16	04:39	05:41	06:47	07:51	08:02	09:01 (7)
	22:05	21:00	19:36	18:13	16:00	09:33 (7)
17	04:41	05:43	06:49	07:53	08:04	09:01 (7)
	22:03	20:57	19:33	18:10	15:58	09:32 (7)
18	04:43	05:45	06:51	07:56	08:06	09:03 (7)
	22:02	20:55	19:30	18:07	15:56	09:32 (7)
19	04:44	05:47	06:53	07:58	08:09	09:05 (7)
	22:00	20:52	19:27	18:05	15:55	09:31 (7)
20	04:46	05:49	06:55	08:00	08:11	09:05 (7)
	21:59	20:50	19:24	18:02	15:53	09:30 (7)
21	04:48	05:51	06:57	08:02	08:13	09:06 (7)
	21:57	20:47	19:22	17:59	15:51	09:29 (7)
22	04:50	05:54	06:59	08:05	08:15	09:09 (7)
	21:55	20:44	19:19	17:57	15:50	09:28 (7)
23	04:52	05:56	07:01	08:07	08:17	09:10 (7)
	21:53	20:42	19:16	17:54	15:48	09:26 (7)
24	04:53	05:58	07:04	08:09	10:13 (7)	08:19
	21:52	20:39	19:13	17:52	4	10:17 (7)
25	04:55	06:00	07:06	07:12	09:08 (7)	08:21
	21:50	20:36	19:10	16:49	15	09:23 (7)
26	04:57	06:02	07:08	07:14	09:05 (7)	08:23
	21:48	20:34	19:07	16:47	20	09:25 (7)
27	04:59	06:04	07:10	07:16	09:03 (7)	08:25
	21:46	20:31	19:05	16:44	25	09:28 (7)
28	05:01	06:06	07:12	07:18	09:01 (7)	08:27
	21:44	20:28	19:02	16:42	28	09:29 (7)
29	05:03	06:09	07:14	07:21	09:01 (7)	08:29
	21:42	20:26	18:59	16:39	29	09:30 (7)
30	05:05	06:11	07:16	07:23	08:59 (7)	08:31
	21:40	20:23	18:56	16:37	32	09:31 (7)
31	05:07	06:13		07:25	08:59 (7)	
	21:38	20:20		16:34	33	09:32 (7)
Potential sun hours	538	474	386	321	241	207
Total, worst case		487	1273	549	764	
Sun reduction		0.50	0.46	0.28	0.08	
Oper. time red.		1.00	1.00	1.00	1.00	
Wind dir. red.		1.00	1.00	1.00	1.00	
Total reduction		0.50	0.46	0.28	0.08	
Total, real		246	588	155	60	

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Kirš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (504)
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 16:40	07:13 17:46	06:47 19:55	05:27 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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	04:25 22:04	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:05	04:21 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	08:36 15:35
4	08:59 15:43	08:15 16:47	07:05 17:52	06:39 20:01	05:20 21:08	04:23 22:07	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:12 16:49	07:02 17:55	06:36 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 16:22	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:41 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:56 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34	07:43 16:16	08:44 15:31
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:31
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	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	08:54 15:55	07:59 17:03	06:46 18:08	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 16:09	08:49 15:30
12	08:53 15:56	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 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	07:52 17:11	06:38 18:15	06:12 20:23	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:46 18:18	07:57 16:03	08:52 15:29
15	08:49 16:02	07:49 17:13	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	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	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	05:43 20:57	06:48 19:32	07:53 18:10	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:20	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	08:42 16:13	07:37 17:25	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	08:10 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	06:15 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:21	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:21	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:52	04:16 22:21	04:57 21:47	06:02 20:33	07:07 19:07	07:14 16:46	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:17 22:21	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		06:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53		04:28 22:01		05:07 21:37	06:12 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
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Flickering_Valka_Vestas172 Shadow receptor: Ž uldini 2 km dzivojama maja Nr.1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (579)

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 16:40	07:13 17:46	06:48 19:55	05:27 21:01	04:27 22:03	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 15:40	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:04	04:25 22:04	04:20 22:20	05:11 21:33	06:17 20:15	07:20 18:50	07:30 16:29	08:35 15:36
3	09:00 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:06	04:24 22:06	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48	07:32 16:27	08:37 15:35
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	04:22 22:18	05:15 21:29	06:21 20:09	07:25 18:45	07:34 16:25	08:38 15:34
5	08:59 15:45	08:13 16:49	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	04:23 22:18	05:17 21:26	06:23 20:06	07:27 18:42	07:37 16:23	08:40 15:33
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:10	04:25 22:17	05:19 21:24	06:25 20:03	07:29 18:39	07:39 16:20	08:42 15:32
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	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37	07:41 16:18	08:43 15:32
8	08:57 15:49	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	04:27 22:15	05:23 21:19	06:30 19:58	07:33 18:34	07:44 16:16	08:45 15:31
9	08:56 15:51	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31	07:46 16:14	08:46 15:30
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	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:28	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:03	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:12	05:30 21:12	06:36 19:49	07:40 18:26	07:51 16:10	08:49 15:30
12	08:53 15:56	07:57 17:06	06:43 18:11	06:17 20:19	05:02 21:25	04:16 22:16	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	07:53 16:07	08:50 15:29
13	08:52 15:58	07:54 17:08	06:41 18:13	06:14 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 16:05	08:51 15:29
14	08:51 16:00	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 16:03	08:52 15:29
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16	08:48 16:04	07:47 17:15	06:32 18:20	06:06 20:28	04:53 21:34	04:15 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	08:02 16:00	08:55 15:29
17	08:47 16:06	07:44 17:18	06:30 18:22	06:04 20:30	04:51 21:36	04:15 22:20	04:40 22:03	05:43 20:57	06:49 19:33	07:53 18:10	08:04 15:58	08:56 15:29
18	08:46 16:08	07:42 17:20	06:27 18:24	06:01 20:33	04:49 21:38	04:15 22:20	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	08:44 16:10	07:39 17:22	06:24 18:26	05:58 20:35	04:48 21:40	04:15 22:21	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	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 21:59	05:49 20:49	06:55 19:24	08:00 18:02	08:11 15:52	08:58 15:29
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	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
22	08:39 16:17	07:32 17:29	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 19:19	08:05 17:57	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:40 21:47	04:15 22:22	04:51 21:53	05:55 20:42	07:01 19:16	08:07 17:54	08:17 15:48	09:00 15:31
24	08:36 16:21	07:27 17:34	06:10 18:37	05:45 20:46	04:38 21:49	04:15 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	06:07 18:40	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:05 19:10	07:11 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:21 17:39	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	07:14 16:46	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:22	04:59 21:46	06:04 20:31	07:10 19:04	07:16 16:44	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:44	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	09:01 15:34
29	08:27 16:33		05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:42	06:08 20:25	07:14 18:59	07:21 16:39	08:29 15:39	09:01 15:35
30	08:25 16:35		05:53 19:51	05:30 20:59	04:29 22:00	04:19 22:21	05:05 21:40	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	09:01 15:36
31	08:23 16:37		05:50 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	516	539	539	475	386	321	241	207
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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