

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163 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) []

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

No operational time reduction. It 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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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_Nordex163 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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Bajari - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (488)
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
1	09:00	14:46 (4)	08:21	07:13	16:30 (2)	06:48
	15:39	7 14:53 (4)	16:40	17:46	10 16:40 (2)	19:55
2	09:00	14:46 (4)	08:19	07:11	16:45	21:01
	15:41	8 14:54 (4)	16:42	17:48	19:57	22:02
3	09:00	14:46 (4)	08:17	07:08	16:42	21:03
	15:42	10 14:56 (4)	16:44	17:50	19:59	22:05
4	08:59	14:46 (4)	08:15	07:05	16:39	21:06
	15:43	12 14:58 (4)	16:47	17:53	20:01	22:07
5	08:59	14:46 (4)	08:12	07:03	16:36	21:08
	15:45	13 14:59 (4)	16:49	17:55	20:04	22:08
6	08:58	14:46 (4)	08:10	07:00	16:34	21:10
	15:46	15 15:01 (4)	16:52	17:57	20:06	22:09
7	08:57	14:46 (4)	08:08	06:57	16:31	21:12
	15:48	17 15:03 (4)	16:54	17:59	20:08	22:11
8	08:57	14:47 (4)	08:06	06:54	16:28	21:14
	15:49	18 15:05 (4)	16:56	18:02	20:10	22:11
9	08:56	14:47 (4)	08:03	06:52	16:25	21:16
	15:51	20 15:07 (4)	16:59	18:04	20:12	22:12
10	08:55	14:47 (4)	08:01	06:49	16:23	21:19
	15:53	22 15:09 (4)	17:01	18:06	20:15	22:13
11	08:54	14:47 (4)	07:59	06:46	16:20	21:21
	15:55	22 15:09 (4)	17:03	18:08	20:17	22:14
12	08:53	14:48 (4)	07:56	06:43	16:17	21:23
	15:57	22 15:10 (4)	17:06	18:11	20:19	22:15
13	08:52	14:47 (4)	07:54	16:31 (2)	06:41	21:25
	15:58	23 15:10 (4)	17:08	16:35 (2)	18:13	22:16
14	08:51	14:48 (4)	07:52	16:28 (2)	06:38	21:27
	16:00	23 15:11 (4)	17:11	16:38 (2)	18:15	22:17
15	08:49	14:48 (4)	07:49	16:26 (2)	06:35	21:29
	16:02	23 15:11 (4)	17:13	16:40 (2)	18:17	22:18
16	08:48	14:49 (4)	07:47	16:25 (2)	06:32	21:31
	16:04	23 15:12 (4)	17:15	16:43 (2)	18:20	22:18
17	08:47	14:49 (4)	07:44	16:24 (2)	06:29	21:33
	16:06	23 15:12 (4)	17:18	16:45 (2)	18:22	22:19
18	08:45	14:49 (4)	07:42	16:24 (2)	06:27	21:35
	16:08	23 15:12 (4)	17:20	16:48 (2)	18:24	22:20
19	08:44	14:50 (4)	07:39	16:23 (2)	06:24	21:37
	16:10	22 15:12 (4)	17:22	16:48 (2)	18:26	22:21
20	08:42	14:51 (4)	07:37	16:23 (2)	06:21	21:39
	16:13	21 15:12 (4)	17:25	16:48 (2)	18:28	22:21
21	08:41	14:52 (4)	07:34	16:22 (2)	06:18	21:41
	16:15	20 15:12 (4)	17:27	16:48 (2)	18:31	22:21
22	08:39	14:53 (4)	07:32	16:23 (2)	06:16	21:43
	16:17	19 15:12 (4)	17:29	16:49 (2)	18:33	22:21
23	08:38	14:54 (4)	07:29	16:23 (2)	06:13	21:45
	16:19	17 15:11 (4)	17:32	16:48 (2)	18:35	22:21
24	08:36	14:55 (4)	07:26	16:23 (2)	06:10	21:47
	16:21	16 15:11 (4)	17:34	16:47 (2)	18:37	22:22
25	08:34	14:56 (4)	07:24	16:24 (2)	06:07	21:49
	16:24	14 15:10 (4)	17:36	16:47 (2)	18:39	22:22
26	08:32	14:58 (4)	07:21	16:25 (2)	06:04	21:51
	16:26	11 15:09 (4)	17:39	16:46 (2)	18:42	22:22
27	08:31	15:01 (4)	07:19	16:25 (2)	06:02	21:53
	16:28	4 15:05 (4)	17:41	16:44 (2)	18:44	22:21
28	08:29		07:16	16:27 (2)	05:59	21:54
	16:30		17:43	16:42 (2)	18:46	22:21
29	08:27			06:56	05:57	21:56
	16:33			19:48	20:57	22:21
30	08:25			06:53	05:50	21:58
	16:35			19:50	20:59	22:21
31	08:23			06:50		21:59
	16:37			19:53		22:01
Potential sun hours	227	262	365	429	515	539
Total, worst case	468	320	10			
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	62	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		

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Bajari - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (488)
 Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	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 22
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 21
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 20
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 18
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 16
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 15
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 14
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 12
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
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 8
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 7
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	17:07 (2) 17:11 (2)	07:53 16:07 6
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	17:02 (2) 17:14 (2)	07:55 16:05 4
14	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	16:59 (2) 17:16 (2)	07:57 16:03 4
15	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	16:57 (2) 17:17 (2)	07:59 16:02 4
16	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	16:56 (2) 17:18 (2)	08:02 16:00 11
17	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	16:55 (2) 17:18 (2)	08:04 15:58 14
18	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	16:55 (2) 17:19 (2)	08:06 15:56 16
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	16:54 (2) 17:19 (2)	08:08 15:54 17
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	16:53 (2) 17:19 (2)	08:10 15:52 19
21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	16:53 (2) 17:19 (2)	08:13 15:51 20
22	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:57	16:53 (2) 17:18 (2)	08:15 15:49 21
23	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	16:54 (2) 17:19 (2)	08:17 15:48 22
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	16:54 (2) 17:17 (2)	08:19 15:46 23
25	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	15:55 (2) 16:15 (2)	08:21 15:45 23
26	04:57 21:47	06:02 20:33	07:08 19:07	07:14 16:46	15:55 (2) 16:12 (2)	08:23 15:43 23
27	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	15:57 (2) 16:10 (2)	08:25 15:42 23
28	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	15:58 (2) 16:06 (2)	08:27 15:41 23
29	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	16:01 (2) 16:04 (2)	08:29 15:39 23
30	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	14:29 (4) 15:37 4
31	05:07 21:37	06:13 20:20		07:25 16:34		09:00 15:38 5
Potential sun hours	538	474	386	321	241	207
Total, worst case				333	304	197
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				94	24	12

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	06:10 20:22	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes iela 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
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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzē 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
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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 15:34
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzesa iela 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 21:19	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	07:44 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzē 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
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 21:19	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	07:44 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	04:56 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 16:10	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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimze 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
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

No operational time reduction. It 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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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 21:37	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzēja 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzies 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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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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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 15:31
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes iela 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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 16:41	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 21:19	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	07:44 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes 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
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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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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 21:19	06:38 19:47	07:42 18:23	07:53 16:08	08:50 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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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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Total, worst case												
Sun reduction												
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Table layout: For each day in each month the following matrix apply

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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes 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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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	07:44 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
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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
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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
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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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzesa 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
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
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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		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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzē 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.

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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzesa 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) []

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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 16:10	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 21:51	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	05:38 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes iela 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	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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	07:44 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		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 21:37	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes iela 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 21:10	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 16:04	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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes 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 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 16:44	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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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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 16:10	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Cimzes iela 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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Dravas - Shadow Receptor: 1.0 × 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
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

No operational time reduction. It is assumed 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	08:21	15:51 (2)	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	
15:39	16:40	12	16:03 (2)	17:46	19:55	21:01	22:02	22:20	21:35	20:17	18:53	07:27
2	09:00	08:19	15:50 (2)	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:20	15:16 (2)
15:41	16:42	16	16:06 (2)	17:48	19:57	21:03	22:04	22:19	21:33	20:14	18:50	08:33
3	09:00	08:17	15:50 (2)	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	15:17 (2)
15:42	16:44	19	16:09 (2)	17:50	19:59	21:06	22:05	22:19	21:31	20:12	18:48	08:35
4	08:59	08:15	15:48 (2)	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	15:18 (2)
15:43	16:47	23	16:11 (2)	17:53	20:01	21:08	22:07	22:18	21:29	20:09	18:45	08:38
5	08:59	08:12	15:48 (2)	07:03	06:36	05:18	04:22	04:24	05:17	06:23	07:27	15:19 (2)
15:45	16:49	25	16:13 (2)	17:55	20:04	21:10	22:08	22:17	21:26	20:06	18:42	08:40
6	08:58	08:10	15:47 (2)	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	15:20 (2)
15:46	16:52	26	16:13 (2)	17:57	20:06	21:12	22:10	22:16	21:24	20:03	18:39	08:41
7	08:57	08:08	15:47 (2)	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	15:21 (2)
15:48	16:54	27	16:14 (2)	17:59	20:08	21:14	22:11	22:16	21:22	20:01	18:37	08:43
8	08:57	08:06	15:47 (2)	06:54	06:28	05:11	04:19	04:27	05:23	06:29	07:33	15:22 (2)
15:49	16:56	27	16:14 (2)	18:02	20:10	21:16	22:12	22:15	21:19	19:58	18:34	08:44
9	08:56	08:03	15:47 (2)	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	15:23 (2)
15:51	16:59	27	16:14 (2)	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	08:46
10	08:55	08:01	15:47 (2)	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	15:24 (2)
15:53	17:01	27	16:14 (2)	18:06	20:15	21:21	22:14	22:13	21:14	19:52	18:28	08:47
11	08:54	07:59	15:48 (2)	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	15:25 (2)
15:55	17:03	26	16:14 (2)	18:08	20:17	21:23	22:15	22:11	21:12	19:49	18:26	08:49
12	08:53	07:56	15:47 (2)	06:43	06:17	05:02	04:17	04:33	05:32	06:38	07:42	15:26 (2)
15:57	17:06	27	16:14 (2)	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	08:50
13	08:52	07:54	15:49 (2)	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	15:27 (2)
15:58	17:08	25	16:14 (2)	18:13	20:21	21:27	22:17	22:09	21:07	19:44	18:20	08:51
14	08:51	07:52	15:49 (2)	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	15:28 (2)
16:00	17:11	24	16:13 (2)	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	08:52
15	08:49	07:49	15:49 (2)	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	15:29 (2)
16:02	17:13	23	16:12 (2)	18:17	20:26	21:31	22:18	22:06	21:02	19:38	18:15	08:53
16	08:48	07:47	15:51 (2)	06:32	06:06	04:54	04:15	04:39	05:40	06:46	07:51	15:30 (2)
16:04	17:15	20	16:11 (2)	18:20	20:28	21:33	22:19	22:05	21:00	19:35	18:12	08:54
17	08:47	07:44	15:52 (2)	06:29	06:04	04:51	04:15	04:40	05:43	06:48	07:53	15:31 (2)
16:06	17:18	17	16:09 (2)	18:22	20:30	21:35	22:20	22:03	20:57	19:33	18:10	08:55
18	08:45	07:42	15:55 (2)	06:27	06:01	04:50	04:15	04:42	05:45	06:51	07:55	15:32 (2)
16:08	17:20	13	16:08 (2)	18:24	20:32	21:37	22:20	22:02	20:55	19:30	18:07	08:56
19	08:44	07:39	15:59 (2)	06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	15:33 (2)
16:10	17:22	4	16:03 (2)	18:26	20:35	21:39	22:21	22:00	20:52	19:27	18:04	08:57
20	08:42	07:37		06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	15:34 (2)
16:13	17:25			18:28	20:37	21:41	22:21	21:58	20:49	19:24	18:02	08:58
21	08:41	07:34		06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	15:35 (2)
16:15	17:27			18:31	20:39	21:43	22:21	21:57	20:47	19:21	17:59	08:59
22	08:39	07:32		06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:04	15:36 (2)
16:17	17:29			18:33	20:41	21:45	22:21	21:55	20:44	19:18	17:57	08:59
23	08:38	07:29		06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	15:37 (2)
16:19	17:32			18:35	20:43	21:47	22:22	21:53	20:41	19:16	17:54	08:59
24	08:36	07:26		06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	15:38 (2)
16:21	17:34			18:37	20:46	21:49	22:22	21:51	20:39	19:13	17:51	08:59
25	08:34	07:24		06:07	05:43	04:37	04:16	04:55	06:00	07:05	07:11	15:39 (2)
16:24	17:36			18:39	20:48	21:51	22:22	21:49	20:36	19:10	16:49	08:59
26	08:32	07:21		06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	15:40 (2)
16:26	17:39			18:42	20:50	21:53	22:21	21:47	20:33	19:07	16:46	08:59
27	08:31	07:19		06:02	05:37	04:34	04:17	04:59	06:04	07:10	07:16	15:41 (2)
16:28	17:41			18:44	20:52	21:54	22:21	21:46	20:31	19:04	16:44	08:59
28	08:29	07:16		05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	15:42 (2)
16:30	17:43			18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:41	08:59
29	08:27			06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:20	15:43 (2)
16:33				19:48	20:57	21:58	22:21	21:41	20:25	18:59	16:39	08:59
30	08:25	15:55 (2)		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	15:44 (2)
16:35	3	15:58 (2)		19:50	20:59	21:59	22:20	21:39	20:23	18:56	16:37	08:59
31	08:23	15:53 (2)		06:50		04:28		05:07	06:13		07:25	15:45 (2)
16:37	8	16:01 (2)		19:53		22:01		21:37	20:20		16:34	08:59
Potential sun hours	227			365	429	515	539	538	474	386	321	241
Total, worst case			262									242
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	1		79									19

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Dzelzcelš 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		07:53 (7)	05:28			04:27		05:47 (6)
	15:40	16:40	17:46							19:55	42	08:35 (7)	21:01			22:03	28	06:15 (6)
2	09:00	08:19	07:11							06:45		07:52 (7)	05:25			04:26		05:47 (6)
	15:41	16:42	17:48							19:57	43	08:35 (7)	21:04			22:04	28	06:15 (6)
3	09:00	08:17	07:08							06:42		07:52 (7)	05:23			04:25		05:48 (6)
	15:42	16:45	17:51							20:00	42	08:34 (7)	21:06			22:06	28	06:16 (6)
4	08:59	08:15	07:06							06:40		07:53 (7)	05:21			04:24		05:49 (6)
	15:44	16:47	17:53							20:02	41	08:34 (7)	21:08			22:07	27	06:16 (6)
5	08:59	08:13	07:03							06:37		07:53 (7)	05:18		05:58 (6)	04:22		05:49 (6)
	15:45	16:50	17:55							20:04	40	08:33 (7)	21:10	5	06:03 (6)	22:08	26	06:15 (6)
6	08:58	08:10	07:00							06:34		07:53 (7)	05:16		05:54 (6)	04:21		05:49 (6)
	15:47	16:52	17:57							20:06	38	08:31 (7)	21:12	14	06:08 (6)	22:10	26	06:15 (6)
7	08:57	08:08	06:57							06:31		06:59 (8)	05:14		05:52 (6)	04:21		05:50 (6)
	15:48	16:54	18:00							20:08	48	08:30 (7)	21:15	18	06:10 (6)	22:11	24	06:14 (6)
8	08:57	08:06	06:55							06:28		06:57 (8)	05:11		05:50 (6)	04:20		05:51 (6)
	15:50	16:57	18:02							20:11	51	08:29 (7)	21:17	21	06:11 (6)	22:12	24	06:15 (6)
9	08:56	08:04	06:52							06:26		06:54 (8)	05:09		05:49 (6)	04:19		05:51 (6)
	15:52	16:59	18:04							20:13	53	08:28 (7)	21:19	24	06:13 (6)	22:13	23	06:14 (6)
10	08:55	08:01	06:49							06:23		06:53 (8)	05:07		05:47 (6)	04:18		05:52 (6)
	15:53	17:01	18:06							20:15	52	08:26 (7)	21:21	26	06:13 (6)	22:14	22	06:14 (6)
11	08:54	07:59	06:46							06:20		06:52 (8)	05:04		05:47 (6)	04:18		05:52 (6)
	15:55	17:04	18:09							20:17	51	08:24 (7)	21:23	27	06:14 (6)	22:15	22	06:14 (6)
12	08:53	07:57	06:44							06:17		06:51 (8)	05:02		05:46 (6)	04:17		05:53 (6)
	15:57	17:06	18:11							20:19	46	08:21 (7)	21:25	29	06:15 (6)	22:16	21	06:14 (6)
13	08:52	07:54	06:41							06:15		06:50 (8)	05:00		05:46 (6)	04:16		05:54 (6)
	15:59	17:09	18:13							20:22	42	08:18 (7)	21:27	29	06:15 (6)	22:17	20	06:14 (6)
14	08:51	07:52	06:38							06:12		06:50 (8)	04:58		05:45 (6)	04:16		05:54 (6)
	16:01	17:11	18:15							20:24	35	08:14 (7)	21:29	31	06:16 (6)	22:18	19	06:13 (6)
15	08:50	07:49	06:35							06:09		06:49 (8)	04:56		05:45 (6)	04:16		05:54 (6)
	16:03	17:13	18:18							20:26	26	07:15 (8)	21:31	31	06:16 (6)	22:19	19	06:13 (6)
16	08:48	07:47	06:33							06:07		06:49 (8)	04:54		05:44 (6)	04:15		05:55 (6)
	16:05	17:16	18:20							20:28	25	07:14 (8)	21:34	32	06:16 (6)	22:19	18	06:13 (6)
17	08:47	07:45	06:30							06:04		06:49 (8)	04:52		05:44 (6)	04:15		05:56 (6)
	16:07	17:18	18:22							20:30	25	07:14 (8)	21:36	32	06:16 (6)	22:20	17	06:13 (6)
18	08:46	07:42	06:27							06:01		06:49 (8)	04:50		05:44 (6)	04:15		05:56 (6)
	16:09	17:20	18:24	5		07:21 (7)				20:33	24	07:13 (8)	21:38	33	06:17 (6)	22:20	17	06:13 (6)
19	08:44	07:40	06:24			06:24				05:59		06:50 (8)	04:48		05:44 (6)	04:15		05:56 (6)
	16:11	17:23	18:27	16		07:26 (7)				20:35	23	07:13 (8)	21:40	33	06:17 (6)	22:21	18	06:14 (6)
20	08:43	07:37	06:21			07:06 (7)				05:56		06:50 (8)	04:46		05:43 (6)	04:15		05:56 (6)
	16:13	17:25	18:29	23		07:29 (7)				20:37	21	07:11 (8)	21:42	34	06:17 (6)	22:21	18	06:14 (6)
21	08:41	07:34	06:19			07:04 (7)				05:53		06:52 (8)	04:44		05:44 (6)	04:15		05:56 (6)
	16:15	17:27	18:31	28		07:32 (7)				20:39	18	07:10 (8)	21:43	33	06:17 (6)	22:21	18	06:14 (6)
22	08:40	07:32	06:16			07:02 (7)				05:51		06:53 (8)	04:42		05:44 (6)	04:15		05:56 (6)
	16:17	17:30	18:33	31		07:33 (7)				20:42	15	07:08 (8)	21:45	33	06:17 (6)	22:22	18	06:14 (6)
23	08:38	07:29	06:13			07:00 (7)				05:48		06:55 (8)	04:41		05:44 (6)	04:16		05:57 (6)
	16:20	17:32	18:35	34		07:34 (7)				20:44	11	07:06 (8)	21:47	33	06:17 (6)	22:22	18	06:15 (6)
24	08:36	07:27	06:10			06:59 (7)				05:46			04:39		05:44 (6)	04:16		05:57 (6)
	16:22	17:34	18:38	35		07:34 (7)				20:46			21:49	33	06:17 (6)	22:22	17	06:14 (6)
25	08:34	07:24	06:07			06:57 (7)				05:43			04:37		05:45 (6)	04:16		05:57 (6)
	16:24	17:37	18:40	38		07:35 (7)				20:48			21:51	32	06:17 (6)	22:22	17	06:14 (6)
26	08:33	07:22	06:05			06:57 (7)				05:40			04:36		05:45 (6)	04:17		05:57 (6)
	16:26	17:39	18:42	39		07:36 (7)				20:50			21:53	32	06:17 (6)	22:22	18	06:15 (6)
27	08:31	07:19	06:02			06:56 (7)				05:38			04:34		05:45 (6)	04:17		05:57 (6)
	16:29	17:41	18:44	40		07:36 (7)				20:53			21:54	32	06:17 (6)	22:21	18	06:15 (6)
28	08:29	07:16	05:59			06:55 (7)				05:35			04:33		05:45 (6)	04:18		05:57 (6)
	16:31	17:44	18:46	41		07:36 (7)				20:55			21:56	32	06:17 (6)	22:21	19	06:16 (6)
29	08:27		06:56			07:54 (7)				05:33			04:31		05:46 (6)	04:19		05:57 (6)
	16:33		19:49	42		08:36 (7)				20:57			21:58	31	06:17 (6)	22:21	20	06:17 (6)
30	08:25		06:53			07:53 (7)				05:30			04:30		05:47 (6)	04:19		05:56 (6)
	16:35		19:51	42		08:35 (7)				20:59			22:00	30	06:17 (6)	22:21	21	06:17 (6)
31	08:23		06:51			07:53 (7)							04:28		05:46 (6)			
	16:38		19:53	43		08:36 (7)							22:01	30	06:16 (6)			
Potential sun hours	227	262	365							429			515			539		
Total, worst case						457				812			770			629		
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						184				345			448			352		

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Dzelzcelš 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		05:57 (6)	05:09		05:57 (6)	06:15		06:51 (8)	07:19	07:28	08:33
	22:20	21	06:18 (6)	21:35	28	06:25 (6)	20:17	50	08:23 (7)	18:54	16:32	15:37
2	04:21		05:57 (6)	05:11		05:58 (6)	06:17		06:52 (8)	07:21	07:30	08:35
	22:20	21	06:18 (6)	21:33	26	06:24 (6)	20:15	52	08:25 (7)	18:51	16:30	15:36
3	04:22		05:57 (6)	05:13		05:58 (6)	06:19		06:52 (8)	07:23	07:32	08:37
	22:19	22	06:19 (6)	21:31	25	06:23 (6)	20:12	53	08:26 (7)	18:48	16:27	15:35
4	04:23		05:56 (6)	05:15		05:59 (6)	06:21		06:54 (8)	07:25	07:35	08:38
	22:18	24	06:20 (6)	21:29	23	06:22 (6)	20:09	51	08:26 (7)	18:45	16:25	15:34
5	04:24		05:56 (6)	05:18		06:00 (6)	06:23		06:56 (8)	07:27	07:37	08:40
	22:17	24	06:20 (6)	21:26	20	06:20 (6)	20:06	48	08:27 (7)	18:42	16:23	15:34
6	04:25		05:56 (6)	05:20		06:02 (6)	06:26		07:49 (7)	07:29	07:39	08:42
	22:17	25	06:21 (6)	21:24	16	06:18 (6)	20:04	38	08:27 (7)	18:40	16:21	15:33
7	04:26		05:56 (6)	05:22		06:05 (6)	06:28		07:48 (7)	07:31	07:41	08:43
	22:16	25	06:21 (6)	21:22	11	06:16 (6)	20:01	40	08:28 (7)	18:37	16:18	15:32
8	04:28		05:55 (6)	05:24			06:30		07:47 (7)	07:34	07:44	08:45
	22:15	27	06:22 (6)	21:19			19:58	41	08:28 (7)	18:34	16:16	15:31
9	04:29		05:55 (6)	05:26			06:32		07:46 (7)	07:36	07:46	08:46
	22:14	27	06:22 (6)	21:17			19:55	42	08:28 (7)	18:31	16:14	15:31
10	04:30		05:55 (6)	05:28			06:34		07:46 (7)	07:38	07:48	08:47
	22:13	28	06:23 (6)	21:15			19:52	42	08:28 (7)	18:29	16:12	15:30
11	04:32		05:55 (6)	05:30			06:36		07:45 (7)	07:40	07:51	08:49
	22:12	29	06:24 (6)	21:12			19:50	43	08:28 (7)	18:26	16:10	15:30
12	04:33		05:55 (6)	05:32			06:38		07:45 (7)	07:42	07:53	08:50
	22:10	29	06:24 (6)	21:10			19:47	42	08:27 (7)	18:23	16:08	15:30
13	04:35		05:54 (6)	05:34			06:40		07:44 (7)	07:45	07:55	08:51
	22:09	30	06:24 (6)	21:07			19:44	43	08:27 (7)	18:21	16:06	15:29
14	04:36		05:55 (6)	05:37			06:42		07:44 (7)	07:47	07:57	08:52
	22:08	30	06:25 (6)	21:05			19:41	42	08:26 (7)	18:18	16:04	15:29
15	04:38		05:54 (6)	05:39			06:45		07:44 (7)	07:49	08:00	08:54
	22:06	31	06:25 (6)	21:02			19:38	41	08:25 (7)	18:15	16:02	15:29
16	04:39		05:55 (6)	05:41			06:47		07:44 (7)	07:51	08:02	08:55
	22:05	31	06:26 (6)	21:00			19:36	41	08:25 (7)	18:13	16:00	15:29
17	04:41		05:54 (6)	05:43			06:49		07:44 (7)	07:53	08:04	08:55
	22:03	32	06:26 (6)	20:57			19:33	40	08:24 (7)	18:10	15:58	15:29
18	04:43		05:54 (6)	05:45			06:51		07:45 (7)	07:56	08:06	08:56
	22:02	33	06:27 (6)	20:55			19:30	37	08:22 (7)	18:07	15:56	15:29
19	04:44		05:54 (6)	05:47		07:05 (8)	06:53		07:46 (7)	07:58	08:09	08:57
	22:00	32	06:26 (6)	20:52	3	07:08 (8)	19:27	36	08:22 (7)	18:05	15:55	15:29
20	04:46		05:54 (6)	05:49		07:00 (8)	06:55		07:47 (7)	08:00	08:11	08:58
	21:59	33	06:27 (6)	20:50	12	07:12 (8)	19:24	34	08:21 (7)	18:02	15:53	15:30
21	04:48		05:53 (6)	05:52		06:58 (8)	06:57		07:47 (7)	08:02	08:13	08:59
	21:57	34	06:27 (6)	20:47	16	07:14 (8)	19:22	32	08:19 (7)	17:59	15:51	15:30
22	04:50		05:54 (6)	05:54		06:56 (8)	06:59		07:49 (7)	08:05	08:15	08:59
	21:55	33	06:27 (6)	20:44	19	07:15 (8)	19:19	28	08:17 (7)	17:57	15:50	15:31
23	04:52		05:54 (6)	05:56		06:55 (8)	07:01		07:50 (7)	08:07	08:17	09:00
	21:53	34	06:28 (6)	20:42	21	07:16 (8)	19:16	24	08:14 (7)	17:54	15:48	15:31
24	04:53		05:54 (6)	05:58		06:54 (8)	07:04		07:52 (7)	08:09	08:19	09:00
	21:51	33	06:27 (6)	20:39	23	07:17 (8)	19:13	19	08:11 (7)	17:52	15:46	15:32
25	04:55		05:54 (6)	06:00		06:53 (8)	07:06		07:56 (7)	07:12	08:21	09:00
	21:50	33	06:27 (6)	20:36	24	07:17 (8)	19:10	10	08:06 (7)	16:49	15:45	15:32
26	04:57		05:54 (6)	06:02		06:52 (8)	07:08			07:14	08:23	09:01
	21:48	33	06:27 (6)	20:34	25	07:17 (8)	19:07			16:47	15:44	15:33
27	04:59		05:55 (6)	06:04		06:52 (8)	07:10			07:16	08:25	09:01
	21:46	32	06:27 (6)	20:31	25	07:17 (8)	19:05			16:44	15:42	15:34
28	05:01		05:54 (6)	06:06		06:51 (8)	07:12			07:18	08:27	09:01
	21:44	32	06:26 (6)	20:28	26	07:17 (8)	19:02			16:42	15:41	15:35
29	05:03		05:55 (6)	06:09		06:51 (8)	07:14			07:21	08:29	09:01
	21:42	31	06:26 (6)	20:26	35	08:15 (7)	18:59			16:39	15:40	15:36
30	05:05		05:56 (6)	06:11		06:51 (8)	07:16			07:23	08:31	09:01
	21:40	30	06:26 (6)	20:23	43	08:19 (7)	18:56			16:37	15:39	15:37
31	05:07		05:56 (6)	06:13		06:51 (8)				07:25		09:01
	21:37	30	06:26 (6)	20:20	47	08:21 (7)				16:34		15:38
Potential sun hours	538			474			386			321	241	207
Total, worst case		909			468			969				
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		427			236			448				

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	16:34 (2)	06:48	05:27
	15:39	16:40	17:46	17	16:51 (2)	19:55
2	09:00	08:19	07:11	16:35 (2)	06:45	05:25
	15:41	16:42	17:48	14	16:49 (2)	19:57
3	09:00	08:17	07:08	16:38 (2)	06:42	05:23
	15:42	16:44	17:50	8	16:46 (2)	19:59
4	08:59	08:15	07:05		06:39	05:20
	15:43	16:47	17:53		20:01	21:08
5	08:59	08:12	07:03		06:36	05:18
	15:45	16:49	17:55		20:04	21:10
6	08:58	14:58 (4)	08:10		06:34	05:15
	15:46	15:01 (4)	16:52		20:06	21:12
7	08:57	14:58 (4)	08:08		06:31	05:13
	15:48	15:03 (4)	16:54		20:08	21:14
8	08:57	14:58 (4)	08:06		06:28	05:11
	15:49	15:13 (4)	16:56		20:10	21:16
9	08:56	14:58 (4)	08:03		06:25	05:09
	15:51	15:07 (4)	16:59		20:12	21:19
10	08:55	14:58 (4)	08:01		06:23	05:06
	15:53	15:09 (4)	17:01		20:15	21:21
11	08:54	14:58 (4)	07:59		06:20	05:04
	15:55	15:11 (4)	17:03		20:17	21:23
12	08:53	14:58 (4)	07:56		06:17	05:02
	15:57	15:13 (4)	17:06		20:19	21:25
13	08:52	14:57 (4)	07:54		06:14	05:00
	15:58	15:15 (4)	17:08		20:21	21:27
14	08:51	14:58 (4)	07:52		06:12	04:58
	16:00	15:18 (4)	17:11		20:24	21:29
15	08:49	14:58 (4)	07:49		06:09	04:56
	16:02	15:19 (4)	17:13		20:26	21:31
16	08:48	14:58 (4)	07:47	16:37 (2)	06:06	04:53
	16:04	15:20 (4)	17:15	6	16:43 (2)	18:20
17	08:47	14:58 (4)	07:44	16:35 (2)	06:29	20:28
	16:06	15:21 (4)	17:18	10	16:45 (2)	18:22
18	08:45	14:58 (4)	07:42	16:33 (2)	06:27	20:30
	16:08	15:21 (4)	17:20	14	16:47 (2)	18:24
19	08:44	14:58 (4)	07:39	16:33 (2)	06:24	20:32
	16:10	15:21 (4)	17:22	18	16:51 (2)	18:26
20	08:42	15:00 (4)	07:37	16:32 (2)	06:21	20:35
	16:13	15:22 (4)	17:25	21	16:53 (2)	18:28
21	08:41	15:00 (4)	07:34	16:31 (2)	06:18	20:37
	16:15	15:22 (4)	17:27	24	16:55 (2)	18:31
22	08:39	15:00 (4)	07:32	16:31 (2)	06:16	20:39
	16:17	15:22 (4)	17:29	24	16:55 (2)	18:33
23	08:38	15:01 (4)	07:29	16:30 (2)	06:13	20:41
	16:19	15:22 (4)	17:32	25	16:55 (2)	18:35
24	08:36	15:02 (4)	07:26	16:30 (2)	06:10	20:43
	16:21	15:22 (4)	17:34	25	16:55 (2)	18:37
25	08:34	15:03 (4)	07:24	16:31 (2)	06:07	20:46
	16:24	15:22 (4)	17:36	24	16:55 (2)	18:39
26	08:32	15:04 (4)	07:21	16:31 (2)	06:04	20:48
	16:26	15:21 (4)	17:39	23	16:54 (2)	18:42
27	08:31	15:04 (4)	07:19	16:31 (2)	06:02	20:50
	16:28	15:20 (4)	17:41	22	16:53 (2)	18:44
28	08:29	15:06 (4)	07:16	16:32 (2)	05:59	20:52
	16:30	15:19 (4)	17:43	20	16:52 (2)	18:46
29	08:27	15:09 (4)			06:56	20:55
	16:33	15:17 (4)			19:48	20:53
30	08:25				06:53	20:57
	16:35				19:50	20:50
31	08:23				06:50	20:59
	16:37				19:53	
Potential sun hours	227	262	365	429	515	539
Total, worst case	393	256	39			
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	43	50	16			

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

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

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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	13 14:53 (4) 14:40 (4)
3	04:21 22:19	05:13 21:31	06:19 20:12	07:23 18:48		07:32 16:27	12 14:52 (4) 14:41 (4)
4	04:22 22:18	05:15 21:28	06:21 20:09	07:25 18:45		07:34 16:25	9 14:50 (4) 14:42 (4)
5	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42		07:37 16:23	7 14:49 (4) 14:43 (4)
6	04:25 22:16	05:19 21:24	06:25 20:03	07:29 18:39		07:39 16:20	5 14:48 (4) 14:44 (4)
7	04:26 22:16	05:21 21:22	06:27 20:01	07:31 18:37		07:41 16:18	3 14:47 (4) 14:46 (4)
8	04:27 22:15	05:23 21:19	06:29 19:58	07:33 18:34		07:43 16:16	1 14:47 (4)
9	04:28 22:14	05:26 21:17	06:32 19:55	07:36 18:31		07:46 16:14	
10	04:30 22:12	05:28 21:14	06:34 19:52	07:38 18:28		07:48 16:12	
11	04:31 22:11	05:30 21:12	06:36 19:49	07:40 18:26	11 17:10 (2)	07:50 16:10	
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	16 17:23 (2)	07:53 16:07	
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	19 17:25 (2)	07:55 16:05	14:41 (4) 08:51
14	04:36 22:07	05:36 21:05	06:42 19:41	07:47 18:18	21 17:27 (2)	07:57 16:03	8 14:49 (4) 15:29
15	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	23 17:29 (2)	07:59 16:02	14:39 (4) 08:52
16	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	24 17:27 (2)	08:02 16:00	12 14:51 (4) 15:29
17	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	24 17:26 (2)	08:04 15:58	14:37 (4) 08:53
18	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	25 17:26 (2)	08:06 15:56	15 14:52 (4) 15:29
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	25 17:27 (2)	08:08 15:54	17 14:54 (4) 15:29
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	25 17:26 (2)	08:10 15:52	19 14:55 (4) 15:29
21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	25 17:26 (2)	08:13 15:51	14:36 (4) 08:54
22	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	24 17:26 (2)	08:15 15:49	21 14:57 (4) 15:29
23	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	20 17:22 (2)	08:17 15:48	22 14:58 (4) 15:30
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	17 17:20 (2)	08:19 15:46	14:36 (4) 08:58
25	04:55 21:49	06:00 20:36	07:05 19:10	07:11 16:49	13 17:17 (2)	08:21 15:45	23 14:59 (4) 15:32
26	04:57 21:47	06:02 20:33	07:08 19:07	07:14 16:46	9 16:15 (2)	08:23 15:43	14:37 (4) 09:00
27	04:59 21:45	06:04 20:31	07:10 19:04	07:16 16:44	5 16:12 (2)	08:25 15:42	22 14:59 (4) 15:33
28	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41		08:27 15:41	21 14:58 (4) 15:34
29	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39		08:29 15:39	20 14:58 (4) 15:35
30	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37		08:31 15:38	18 14:56 (4) 15:35
31	05:07 21:37	06:13 20:20		07:25 16:34			16 14:55 (4) 15:37
Potential sun hours	538	474	386	321		241	207
Total, worst case				301		342	50
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				85		27	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 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 21:19	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	07:44 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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		06:50 19:53		04:28 22:01		05:07 21:37	06:13 20:20		07:25 16:34		09:01 15:38
Potential sun hours	227	262	365	429	515	539	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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		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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 18A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (567)
 Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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 15:49	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
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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
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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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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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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		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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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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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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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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 20A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (538)
 Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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
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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	04:41 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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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
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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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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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 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
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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 16:10	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		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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 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	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	05:24	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	07:45	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
	16:10	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	17:30	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	15:35
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		21:38	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 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
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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		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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 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
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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
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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
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
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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		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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 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
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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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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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		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 15:35
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Darza iela 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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Dumini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (455)
Sunshine probability S (Average daily sunshine hours) []

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

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		13:21 (11)	08:21		14:36 (4)	07:13			06:48		18:15 (2)	05:28		04:27			
	15:39	24	14:53 (12)	16:40	41	15:17 (4)	17:46			19:55	45	19:00 (2)	21:01		22:02			
2	09:00		14:34 (12)	08:19		14:37 (4)	07:11			06:45		18:14 (2)	05:25		04:25			
	15:41	20	14:54 (12)	16:42	41	15:18 (4)	17:48			19:57	45	18:59 (2)	21:03		22:04			
3	09:00		14:35 (12)	08:17		14:37 (4)	07:08			06:42		18:13 (2)	05:23		04:24			
	15:42	21	14:56 (12)	16:44	41	15:18 (4)	17:50			19:59	46	18:59 (2)	21:06		22:05			
4	08:59		14:35 (12)	08:15		14:37 (4)	07:05			06:39		18:13 (2)	05:20		04:23			
	15:43	22	14:57 (12)	16:47	40	15:17 (4)	17:53			20:01	46	18:59 (2)	21:08		22:07			
5	08:59		14:35 (12)	08:12		14:38 (4)	07:03			06:36		18:13 (2)	05:18		04:22			
	15:45	23	14:58 (12)	16:49	40	15:18 (4)	17:55			20:04	46	18:59 (2)	21:10		22:08			
6	08:58		14:35 (12)	08:10		14:38 (4)	07:00			06:34		18:13 (2)	05:16		04:21			
	15:46	24	14:59 (12)	16:52	41	16:16 (14)	17:57			20:06	45	18:58 (2)	21:12		22:09			
7	08:57		14:35 (12)	08:08		14:39 (4)	06:57			06:31		18:13 (2)	05:13		04:20			
	15:48	24	14:59 (12)	16:54	46	16:19 (14)	17:59			20:08	44	18:57 (2)	21:14		22:11			
8	08:57		14:36 (12)	08:06		14:39 (4)	06:54			06:28		18:12 (2)	05:11		04:19			
	15:50	24	15:00 (12)	16:56	50	16:22 (14)	18:02			20:10	45	18:57 (2)	21:16		22:12			
9	08:56		14:36 (12)	08:03		14:40 (4)	06:52			06:25		18:13 (2)	05:09		04:19			
	15:51	25	15:01 (12)	16:59	53	16:25 (14)	18:04			20:13	44	18:57 (2)	21:19		22:13			
10	08:55		14:36 (12)	08:01		14:41 (4)	06:49		17:30 (3)	06:23		18:13 (2)	05:06		04:18			
	15:53	26	15:02 (12)	17:01	54	16:27 (14)	18:06	6	17:36 (3)	20:15	42	18:55 (2)	21:21		22:14			
11	08:54		14:36 (12)	07:59		14:42 (4)	06:46		17:29 (3)	06:20		18:13 (2)	05:04		04:17			
	15:55	26	15:02 (12)	17:03	57	16:30 (14)	18:08	11	17:40 (3)	20:17	41	18:54 (2)	21:23		22:15			
12	08:53		14:37 (12)	07:56		14:43 (4)	06:43		17:27 (3)	06:17		18:15 (2)	05:02		04:17			
	15:57	25	15:02 (12)	17:06	55	16:30 (14)	18:11	15	17:42 (3)	20:19	39	18:54 (2)	21:25		22:16			
13	08:52		14:36 (12)	07:54		14:45 (4)	06:41		17:26 (3)	06:14		18:15 (2)	05:00		04:16			
	15:58	26	15:02 (12)	17:08	53	16:31 (14)	18:13	18	17:44 (3)	20:21	37	18:52 (2)	21:27		22:17			
14	08:51		14:37 (12)	07:52		14:46 (4)	06:38		17:25 (3)	06:12		18:16 (2)	04:58		04:16			
	16:00	26	15:03 (12)	17:11	50	16:31 (14)	18:15	21	17:46 (3)	20:24	35	18:51 (2)	21:29		22:18			
15	08:49		14:37 (12)	07:49		14:48 (4)	06:35		17:24 (3)	06:09		18:17 (2)	04:56		04:15			
	16:02	26	15:03 (12)	17:13	46	16:30 (14)	18:17	22	17:46 (3)	20:26	33	18:50 (2)	21:31		22:18			
16	08:48		14:38 (12)	07:47		14:53 (4)	06:32		17:23 (3)	06:06		18:18 (2)	04:54		04:15			
	16:04	26	15:04 (12)	17:15	38	16:31 (14)	18:20	23	17:46 (3)	20:28	29	18:47 (2)	21:33		22:19			
17	08:47		14:38 (12)	07:44		16:05 (14)	06:30		17:24 (3)	06:04		18:21 (2)	04:52		04:15			
	16:06	27	15:05 (4)	17:18	25	16:30 (14)	18:22	23	17:47 (3)	20:30	25	18:46 (2)	21:35		22:20			
18	08:45		14:38 (12)	07:42		16:05 (14)	06:27		17:23 (3)	06:01		18:23 (2)	04:50		04:15			
	16:08	29	15:07 (4)	17:20	26	16:31 (14)	18:24	23	17:46 (3)	20:32	20	18:43 (2)	21:37		22:20			
19	08:44		14:39 (12)	07:39		16:06 (14)	06:24		17:24 (3)	05:58		18:25 (2)	04:48		04:15			
	16:11	29	15:08 (4)	17:22	24	16:30 (14)	18:26	21	17:45 (3)	20:35	14	18:39 (2)	21:39		22:21			
20	08:42		14:39 (4)	07:37		16:06 (14)	06:21		17:24 (3)	05:56			04:46		04:15			
	16:13	31	15:10 (4)	17:25	23	16:29 (14)	18:28	20	17:44 (3)	20:37			21:41		22:21			
21	08:41		14:39 (4)	07:34		16:07 (14)	06:18		17:24 (3)	05:53			04:44		04:15			
	16:15	32	15:11 (4)	17:27	20	16:27 (14)	18:31	20	17:44 (2)	20:39			21:43		22:21			
22	08:39		14:38 (4)	07:32		16:09 (14)	06:16		17:27 (3)	05:50			04:42		04:15			
	16:17	34	15:12 (4)	17:29	18	16:27 (14)	18:33	23	17:50 (2)	20:41			21:45		22:21			
23	08:38		14:38 (4)	07:29		16:10 (14)	06:13		17:28 (2)	05:48			04:40		04:15			
	16:19	35	15:13 (4)	17:32	14	16:24 (14)	18:35	24	17:52 (2)	20:43			21:47		22:21			
24	08:36		14:37 (4)	07:26		16:13 (14)	06:10		17:25 (2)	05:45			04:39		04:16			
	16:21	36	15:13 (4)	17:34	8	16:21 (14)	18:37	29	17:54 (2)	20:46			21:49		22:22			
25	08:34		14:37 (4)	07:24			06:07		17:23 (2)	05:43			04:37		04:16			
	16:24	37	15:14 (4)	17:36			18:39	32	17:55 (2)	20:48			21:51		22:22			
26	08:32		14:37 (4)	07:21			06:04		17:21 (2)	05:40			04:35		04:16			
	16:26	38	15:15 (4)	17:39			18:42	35	17:56 (2)	20:50			21:53		22:21			
27	08:31		14:36 (4)	07:19			06:02		17:19 (2)	05:38			04:34		04:17			
	16:28	39	15:15 (4)	17:41			18:44	38	17:57 (2)	20:52			21:54		22:21			
28	08:29		14:36 (4)	07:16			05:59		17:19 (2)	05:35			04:32		04:18			
	16:30	40	15:16 (4)	17:43			18:46	39	17:58 (2)	20:55			21:56		22:21			
29	08:27		14:36 (4)				06:56		18:17 (2)	05:32			04:31		04:18			
	16:33	40	15:16 (4)				19:48	41	18:58 (2)	20:57			21:58		22:21			
30	08:25		14:37 (4)				06:53		18:16 (2)	05:30			04:29		04:19			
	16:35	40	15:17 (4)				19:50	43	18:59 (2)	20:59			21:59		22:20			
31	08:23		14:37 (4)				06:50		18:15 (2)				04:28					
	16:37	41	15:18 (4)				19:53	44	18:59 (2)				22:01					
Potential sun hours	227			262			365			429			515			539		
Total, worst case	916			904			571			721								
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	100			176			230			307								

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	18:12 (2)	07:18		18:06 (3)	07:27	14:10 (4)	08:33
	22:20	21:35			20:17	41 18:53 (2)	18:53	16	18:22 (3)	16:32	55 15:56 (14)	15:37
2	04:21	05:11			06:17	18:11 (2)	07:20		18:06 (3)	07:30	14:10 (4)	08:35
	22:19	21:33			20:14	42 18:53 (2)	18:50	13	18:19 (3)	16:29	52 15:54 (14)	15:36
3	04:22	05:13			06:19	18:11 (2)	07:23		18:08 (3)	07:32	14:08 (4)	08:36
	22:19	21:31			20:12	44 18:55 (2)	18:48	8	18:16 (3)	16:27	50 15:51 (14)	15:35
4	04:23	05:15			06:21	18:10 (2)	07:25		18:10 (3)	07:34	14:08 (4)	08:38
	22:18	21:28			20:09	45 18:55 (2)	18:45	3	18:13 (3)	16:25	47 15:49 (14)	15:34
5	04:24	05:17			06:23	18:10 (2)	07:27			07:37	14:07 (4)	08:40
	22:17	21:26			20:06	45 18:55 (2)	18:42			16:23	42 15:46 (14)	15:33
6	04:25	05:19			06:25	18:09 (2)	07:29			07:39	14:08 (4)	08:41
	22:16	21:24			20:03	45 18:54 (2)	18:39			16:20	39 14:47 (4)	15:33
7	04:26	05:21			06:27	18:08 (2)	07:31			07:41	14:08 (4)	08:43
	22:16	21:22			20:01	46 18:54 (2)	18:37			16:18	40 14:48 (4)	15:32
8	04:27	05:24			06:30	18:08 (2)	07:33			07:43	14:07 (4)	08:44
	22:15	21:19			19:58	46 18:54 (2)	18:34			16:16	41 14:48 (4)	15:31
9	04:28	05:26			06:32	18:08 (2)	07:36			07:46	14:08 (4)	08:46
	22:14	21:17			19:55	45 18:53 (2)	18:31			16:14	40 14:48 (4)	15:31
10	04:30	05:28			06:34	18:07 (2)	07:38			07:48	14:07 (4)	08:47
	22:12	21:14			19:52	46 18:53 (2)	18:28			16:12	41 14:48 (4)	15:30
11	04:31	05:30			06:36	18:07 (2)	07:40			07:50	14:08 (4)	08:49
	22:11	21:12			19:49	45 18:52 (2)	18:26			16:10	40 14:48 (4)	15:30
12	04:33	05:32			06:38	18:07 (2)	07:42			07:53	14:07 (4)	08:50
	22:10	21:10			19:47	44 18:51 (2)	18:23			16:08	41 14:48 (4)	15:29
13	04:34	05:34			06:40	18:07 (2)	07:44			07:55	14:08 (4)	08:51
	22:09	21:07			19:44	43 18:50 (2)	18:20			16:06	40 14:48 (4)	15:29
14	04:36	05:36			06:42	18:08 (2)	07:47			07:57	14:09 (4)	08:52
	22:07	21:05			19:41	41 18:49 (2)	18:18			16:04	39 14:48 (4)	15:29
15	04:37	05:38			06:44	18:08 (2)	07:49			07:59	14:09 (4)	08:53
	22:06	21:02			19:38	40 18:48 (2)	18:15			16:02	39 14:48 (4)	15:29
16	04:39	05:41			06:46	18:08 (2)	07:51			08:02	14:10 (4)	08:54
	22:05	21:00			19:35	38 18:46 (2)	18:12			16:00	38 14:48 (4)	15:29
17	04:41	05:43			06:49	18:09 (2)	07:53			08:04	14:10 (4)	08:55
	22:03	20:57			19:33	36 18:45 (2)	18:10			15:58	37 14:47 (4)	15:29
18	04:42	05:45			06:51	18:10 (2)	07:55			08:06	14:11 (4)	08:56
	22:02	20:55			19:30	33 18:43 (2)	18:07	10		16:54 (14)	15:56	36 14:47 (4)
19	04:44	05:47			06:53	18:11 (2)	07:58			08:08	14:12 (4)	08:57
	22:00	20:52			19:27	30 18:41 (2)	18:04	15		16:56 (14)	15:54	35 14:47 (4)
20	04:46	05:49			06:55	18:13 (2)	08:00			08:10	14:13 (4)	08:58
	21:58	20:49			19:24	25 18:38 (2)	18:02	19		16:57 (14)	15:53	34 14:47 (4)
21	04:48	05:51			06:57	18:12 (3)	08:02			08:13	14:14 (4)	08:58
	21:57	20:47			19:21	23 18:35 (2)	17:59	22		16:59 (14)	15:51	32 14:46 (4)
22	04:49	05:53			06:59	18:11 (3)	08:04			08:15	14:15 (4)	08:59
	21:55	20:44			19:18	21 18:32 (2)	17:57	23		16:59 (14)	15:49	31 14:46 (4)
23	04:51	05:55			07:01	18:09 (3)	08:07			08:17	14:16 (12)	08:59
	21:53	20:41			19:16	19 18:28 (3)	17:54	24		17:00 (14)	15:48	29 14:45 (4)
24	04:53	05:58			07:03	18:08 (3)	08:09			08:19	14:15 (12)	09:00
	21:51	20:39	14	18:29 (2)	19:13	21 18:29 (3)	17:51	25		17:00 (14)	15:46	29 14:44 (4)
25	04:55	06:00			07:05	18:06 (3)	07:11			08:21	14:16 (12)	09:00
	21:49	20:36	21	18:46 (2)	19:10	23 18:29 (3)	16:49	26		16:01 (14)	15:45	28 14:44 (4)
26	04:57	06:02			07:08	18:06 (3)	07:14			08:23	14:16 (12)	09:00
	21:47	20:33	26	18:48 (2)	19:07	22 18:28 (3)	16:46	40		16:00 (14)	15:43	26 14:42 (12)
27	04:59	06:04			07:10	18:05 (3)	07:16			08:25	14:16 (12)	09:01
	21:45	20:31	29	18:49 (2)	19:04	23 18:28 (3)	16:44	47		16:01 (14)	15:42	26 14:42 (12)
28	05:01	06:06			07:12	18:05 (3)	07:18			08:27	14:17 (12)	09:01
	21:43	20:28	33	18:51 (2)	19:02	22 18:27 (3)	16:41	51		16:00 (14)	15:41	27 14:44 (12)
29	05:03	06:08			07:14	18:04 (3)	07:20			08:29	14:17 (12)	09:01
	21:41	20:25	35	18:51 (2)	18:59	23 18:27 (3)	16:39	53		16:00 (14)	15:39	27 14:44 (12)
30	05:05	06:10			07:16	18:05 (3)	07:23			08:31	14:18 (12)	09:01
	21:39	20:23	37	18:52 (2)	18:56	20 18:25 (3)	16:37	55		15:59 (14)	15:38	26 14:44 (12)
31	05:07	06:13			07:18		07:25			14:11 (4)		09:00
	21:37	20:20	40	18:53 (2)			16:34	56		15:59 (14)		15:38
Potential sun hours	538	474			386		321			241		207
Total, worst case			235		1037		506			1107		783
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			119		479		143			87		48

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 15:39	11:13 (5) 16:40	08:21 19:34 (1)	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	11:14 (5) 16:42	08:19 19:35 (1)	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	11:15 (5) 16:45	08:17 19:37 (1)	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	11:15 (5) 16:47	08:15 19:39 (1)	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	11:16 (5) 16:49	08:13 19:36 (1)	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
6	08:58 15:46	11:18 (5) 16:52	08:10 19:38 (1)	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	11:19 (5) 16:54	08:08 19:39 (1)	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
8	08:57 15:50	11:32 (5) 16:56	08:06 19:41 (1)	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 20:01	07:34 18:34	07:44 16:16
9	08:56 15:51	09:36 (1) 16:59	08:04 19:42 (1)	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 20:01	07:36 18:31	07:46 16:14
10	08:55 15:53	09:35 (1) 17:01	08:01 19:43 (1)	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 20:01	07:38 18:29	07:48 16:12
11	08:54 15:55	09:34 (1) 17:04	07:59 19:44 (1)	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 20:01	07:40 18:26	07:51 16:10
12	08:53 15:57	09:32 (1) 17:06	07:57 19:45 (1)	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 20:01	07:42 18:23	07:53 16:08
13	08:52 15:59	09:31 (1) 17:08	07:54 19:46 (1)	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 20:01	07:45 18:20	07:55 16:06
14	08:51 16:00	09:29 (1) 17:11	07:52 19:48 (1)	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 20:01	07:47 18:18	07:57 16:04
15	08:50 16:02	09:28 (1) 17:13	07:49 19:49 (1)	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 20:01	07:49 18:15	08:00 16:02
16	08:48 16:04	09:28 (1) 17:15	07:47 19:50 (1)	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 20:01	07:51 18:12	08:02 16:00
17	08:47 16:06	09:27 (1) 17:18	07:45 19:51 (1)	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 20:01	07:53 18:10	08:04 15:58
18	08:46 16:09	09:28 (1) 17:20	07:42 19:52 (1)	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 20:01	07:56 18:07	08:06 15:56
19	08:44 16:11	09:28 (1) 17:23	07:40 19:53 (1)	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 20:01	07:58 18:04	08:09 15:54
20	08:43 16:13	09:27 (1) 17:25	07:37 19:54 (1)	06:21 18:29	05:56 20:37	04:46 21:42	04:15 22:21	04:46 22:00	05:49 20:50	06:55 20:01	08:00 18:02	08:11 15:53
21	08:41 16:15	09:27 (1) 17:34	07:34 19:54 (1)	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 20:01	08:02 18:01	08:13 15:51
22	08:40 16:17	09:28 (1) 17:32	07:32 19:54 (1)	06:16 18:33	05:51 20:41	04:42 21:45	04:15 22:22	04:49 21:55	05:53 20:44	06:59 20:01	08:05 18:07	08:15 15:49
23	08:38 16:19	09:28 (1) 17:32	07:29 19:54 (1)	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
24	08:36 16:22	09:28 (1) 17:34	07:27 19:55 (1)	06:10 18:37	05:45 20:46	04:39 21:49	04:16 22:22	04:53 21:52	05:58 20:39	07:03 19:13	08:09 17:52	08:19 15:46
25	08:34 16:24	09:28 (1) 17:37	07:24 19:55 (1)	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	09:29 (1) 17:39	07:21 19:56 (1)	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
27	08:31 16:28	09:29 (1) 17:41	07:19 19:56 (1)	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	09:30 (1) 17:44	07:16 19:57 (1)	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	09:30 (1) 17:44	07:14 19:58 (1)	05:56 18:48	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
30	08:25 16:35	09:31 (1) 17:44	07:11 19:59 (1)	05:53 18:51	05:30 20:59	04:29 21:59	04:19 22:21	05:05 21:40	06:11 20:23	07:16 18:56	07:23 16:37	08:31 15:38
31	08:23 16:38	09:32 (1) 17:44	07:09 19:59 (1)	05:51 19:53	06:28 22:01	04:28 22:01	04:17 22:21	05:07 21:38	06:13 20:20	07:25 16:34	07:25 16:34	08:31 15:38
Potential sun hours	227	262	365	429	515	539	538	475	386	321	241	207
Total, worst case	638	56										633
Sun reduction	0.11	0.19									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	0.11	0.19									0.08	0.06
Total, real	70	11									42	39

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Gaisini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (480)
Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed 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	08:21	15:50 (2)	07:13	06:48	05:27	04:27	04:20	05:09	06:15	07:18	08:33
15:39	16:40	13	16:03 (2)	17:46	19:55	21:01	22:02	22:20	21:35	20:17	18:53	16:32
2	09:00	08:19	15:50 (2)	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:20	08:35
15:40	16:42	16	16:06 (2)	17:48	19:57	21:03	22:04	22:19	21:33	20:14	18:50	16:29
3	09:00	08:17	15:50 (2)	07:08	06:42	05:23	04:24	04:21	05:13	06:19	07:23	08:36
15:42	16:44	19	16:09 (2)	17:50	19:59	21:06	22:05	22:19	21:31	20:12	18:48	16:27
4	08:59	08:15	15:49 (2)	07:05	06:39	05:20	04:23	04:22	05:15	06:21	07:25	08:38
15:43	16:47	22	16:11 (2)	17:53	20:01	21:08	22:07	22:18	21:29	20:09	18:45	16:25
5	08:59	08:12	15:49 (2)	07:03	06:36	05:18	04:22	04:24	05:17	06:23	07:27	08:40
15:45	16:49	23	16:12 (2)	17:55	20:04	21:10	22:08	22:17	21:26	20:06	18:42	16:22
6	08:58	08:10	15:49 (2)	07:00	06:34	05:15	04:21	04:25	05:19	06:25	07:29	08:41
15:46	16:52	23	16:12 (2)	17:57	20:06	21:12	22:10	22:16	21:24	20:03	18:39	16:20
7	08:57	08:08	15:49 (2)	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	08:43
15:48	16:54	23	16:12 (2)	17:59	20:08	21:14	22:11	22:16	21:22	20:01	18:37	16:18
8	08:57	08:06	15:49 (2)	06:54	06:28	05:11	04:19	04:27	05:23	06:29	07:33	08:44
15:49	16:56	23	16:12 (2)	18:02	20:10	21:16	22:12	22:15	21:19	19:58	18:34	16:16
9	08:56	08:03	15:50 (2)	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	08:46
15:51	16:59	22	16:12 (2)	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14
10	08:55	08:01	15:50 (2)	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	08:47
15:53	17:01	21	16:11 (2)	18:06	20:15	21:21	22:14	22:13	21:14	19:52	18:28	16:12
11	08:54	07:59	15:51 (2)	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	08:49
15:55	17:03	20	16:11 (2)	18:08	20:17	21:23	22:15	22:11	21:12	19:49	18:26	16:09
12	08:53	07:56	15:51 (2)	06:43	06:17	05:02	04:17	04:33	05:32	06:38	07:42	08:50
15:56	17:06	19	16:10 (2)	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07
13	08:52	07:54	15:53 (2)	06:41	06:14	05:00	04:16	04:34	05:34	06:40	07:44	08:51
15:58	17:08	16	16:09 (2)	18:13	20:21	21:27	22:17	22:09	21:07	19:44	18:20	16:05
14	08:51	07:52	15:55 (2)	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	08:52
16:00	17:11	12	16:07 (2)	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:03
15	08:49	07:49	15:58 (2)	06:35	06:09	04:56	04:15	04:37	05:38	06:44	07:49	08:53
16:02	17:13	6	16:04 (2)	18:17	20:26	21:31	22:18	22:06	21:02	19:38	18:15	16:02
16	08:48	07:47		06:32	06:06	04:53	04:15	04:39	05:40	06:46	07:51	08:54
16:04	17:15			18:20	20:28	21:33	22:19	22:05	21:00	19:35	18:12	16:00
17	08:47	07:44		06:29	06:04	04:51	04:15	04:40	05:43	06:48	07:53	08:55
16:06	17:18			18:22	20:30	21:35	22:20	22:03	20:57	19:33	18:10	15:58
18	08:45	07:42		06:27	06:01	04:49	04:15	04:42	05:45	06:51	07:55	08:56
16:08	17:20			18:24	20:32	21:37	22:20	22:02	20:55	19:30	18:07	15:56
19	08:44	07:39		06:24	05:58	04:48	04:15	04:44	05:47	06:53	07:58	08:57
16:10	17:22			18:26	20:35	21:39	22:21	22:00	20:52	19:27	18:04	15:54
20	08:42	07:37		06:21	05:56	04:46	04:15	04:46	05:49	06:55	08:00	08:58
16:13	17:25			18:28	20:37	21:41	22:21	21:58	20:49	19:24	18:02	15:52
21	08:41	07:34		06:18	05:53	04:44	04:15	04:47	05:51	06:57	08:02	08:58
16:15	17:27			18:31	20:39	21:43	22:21	21:57	20:47	19:21	17:59	15:51
22	08:39	07:32		06:16	05:50	04:42	04:15	04:49	05:53	06:59	08:04	08:59
16:17	17:29			18:33	20:41	21:45	22:21	21:55	20:44	19:18	17:56	15:49
23	08:38	07:29		06:13	05:48	04:40	04:15	04:51	05:55	07:01	08:07	08:59
16:19	17:32			18:35	20:43	21:47	22:22	21:53	20:41	19:16	17:54	15:48
24	08:36	07:26		06:10	05:45	04:39	04:15	04:53	05:58	07:03	08:09	08:59
16:21	17:34			18:37	20:46	21:49	22:22	21:51	20:39	19:13	17:51	15:46
25	08:34	07:24		06:07	05:43	04:37	04:16	04:55	06:00	07:05	07:11	08:21
16:24	17:36			18:39	20:48	21:51	22:22	21:49	20:36	19:10	16:49	15:45
26	08:32	07:21		06:04	05:40	04:35	04:16	04:57	06:02	07:08	07:14	08:23
16:26	17:39			18:42	20:50	21:53	22:21	21:47	20:33	19:07	16:46	15:43
27	08:31	07:19		06:02	05:37	04:34	04:17	04:59	06:04	07:10	07:16	08:25
16:28	17:41			18:44	20:52	21:54	22:21	21:46	20:31	19:04	16:44	15:42
28	08:29	07:16		05:59	05:35	04:32	04:17	05:01	06:06	07:12	07:18	08:27
16:30	17:43			18:46	20:55	21:56	22:21	21:43	20:28	19:02	16:41	15:41
29	08:27	15:54 (2)		06:56	05:32	04:31	04:18	05:03	06:08	07:14	07:20	08:29
16:33	1	15:55 (2)		19:48	20:57	21:58	22:21	21:41	20:25	18:59	16:39	15:39
30	08:25	15:53 (2)		06:53	05:30	04:29	04:19	05:05	06:10	07:16	07:23	08:31
16:35	5	15:58 (2)		19:50	20:59	21:59	22:20	21:39	20:23	18:56	16:37	15:38
31	08:23	15:52 (2)		06:50		04:28		05:07	06:13		07:25	08:31
16:37	9	16:01 (2)		19:53		22:01		21:37	20:20		16:34	15:41
Potential sun hours	227			365	429	515	539	538	474	386	321	241
Total, worst case	15										78	221
Sun reduction	0.11										0.28	0.08
Oper. time red.	1.00										1.00	1.00
Wind dir. red.	1.00										1.00	1.00
Total reduction	0.11										0.28	0.08
Total, real	2										22	17

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Gravas - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (479)
Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed 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 15:41	08:19 16:42	16:04 (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	15:25 (2)
3	09:00 15:42	08:17 16:44	16:02 (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	15:51 (2)
4	08:59 15:43	08:15 16:47	16:09 (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	15:50 (2)
5	08:59 15:45	08:12 16:49	16:11 (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	15:44 (2)
6	08:58 15:46	08:10 16:52	16:14 (2)	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	15:37 (2)
7	08:57 15:48	08:08 16:54	16:16 (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	15:30 (2)
8	08:57 15:49	08:06 16:56	16:19 (2)	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	15:27 (2)
9	08:56 15:51	08:03 16:59	16:21 (2)	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	15:35 (2)
10	08:55 15:53	08:01 17:01	16:22 (2)	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14	04:30 22:13	05:28 21:14	06:34 19:52	07:38 18:28	15:32 (2)
11	08:54 15:55	07:59 17:03	16:22 (2)	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	15:30 (2)
12	08:53 15:57	07:56 17:06	16:22 (2)	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	15:29 (2)
13	08:52 15:58	07:54 17:08	16:22 (2)	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	15:29 (2)
14	08:51 16:00	07:52 17:11	16:22 (2)	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	15:29 (2)
15	08:49 16:02	07:49 17:13	16:22 (2)	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	15:29 (2)
16	08:48 16:04	07:47 17:15	16:21 (2)	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	15:29 (2)
17	08:47 16:06	07:44 17:18	16:19 (2)	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	15:29 (2)
18	08:45 16:08	07:42 17:20	16:19 (2)	06:27 18:24	06:01 20:32	04:50 21:37	04:15 22:20	04:42 22:02	05:45 20:55	06:51 19:30	07:55 18:07	15:29 (2)
19	08:44 16:10	07:39 17:22	16:01 (2)	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	15:29 (2)
20	08:42 16:13	07:37 17:25	16:03 (2)	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	15:29 (2)
21	08:41 16:15	07:34 17:27	16:14 (2)	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	15:29 (2)
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 17:57	15:29 (2)
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	15:29 (2)
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	15:29 (2)
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	15:29 (2)
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	15:29 (2)
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	15:29 (2)
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	15:29 (2)
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	15:29 (2)
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	15:29 (2)
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	15:29 (2)
Potential sun hours	227	262		365	429	515	539	538	474	386	321	241
Total, worst case		374								235		154
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		73								66		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)

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
13	08:52 15:59	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	07:50 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	06:07 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	08:02 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 18:05	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	07:34 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		06:56 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		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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	08:11 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
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 16:57	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	08:01 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 15:59	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	07:50 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	06:07 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	08:02 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 18:05	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	07:34 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 19:22	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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

No operational time reduction. It is assumed the 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
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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 22:09	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
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
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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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	11:27 (5)	08:21	09:40 (1)	07:14	06:48	05:28	04:27	04:20	05:09	06:15	07:18	07:28	08:33	09:17 (1)
2	15:39	11:49 (5)	16:40	10:00 (1)	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:53	16:32	15:37	09:38 (1)
3	09:00	11:29 (5)	08:19	09:42 (1)	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21	07:30	08:35	09:18 (1)
4	15:41	11:50 (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	09:37 (1)
5	09:00	09:42 (1)	08:17	09:45 (1)	07:08	06:42	05:23	04:24	04:22	05:13	06:19	07:23	07:32	08:37	09:20 (1)
6	15:42	11:49 (5)	16:45	10:02 (1)	17:50	19:59	21:06	22:06	22:19	21:31	20:12	18:48	16:27	15:35	09:21 (1)
7	08:59	09:41 (1)	08:15	09:48 (1)	07:05	06:39	05:20	04:23	04:23	05:15	06:21	07:25	07:35	08:38	09:22 (1)
8	15:43	11:49 (5)	16:47	10:03 (1)	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25	15:34	09:21 (1)
9	08:59	09:40 (1)	08:13	09:53 (1)	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	07:37	08:40	09:24 (1)
10	15:45	11:49 (5)	16:49	10:04	17:55	20:04	21:10	22:08	22:18	21:26	20:06	18:42	16:23	15:33	09:24 (1)
11	08:58	09:39 (1)	08:10	10:00	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:20	15:33	09:25 (1)
12	15:46	11:48 (5)	16:52	10:06	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:20	15:33	09:25 (1)
13	08:58	09:38 (1)	08:08	10:07	17:57	20:06	21:12	22:10	22:17	21:24	20:04	18:40	16:20	15:33	09:25 (1)
14	15:48	11:48 (5)	16:54	10:08	18:00	20:08	21:15	22:11	22:16	21:22	20:01	18:37	16:18	15:32	09:27 (1)
15	08:57	09:37 (1)	08:06	10:09	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31	09:29 (1)
16	15:50	11:47 (5)	16:56	10:10	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31	09:30 (1)
17	08:56	09:36 (1)	08:04	10:11	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16	15:31	09:30 (1)
18	15:51	11:46 (5)	16:59	10:12	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31	09:30 (1)
19	08:55	09:35 (1)	08:01	10:13	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:31	09:30 (1)
20	15:53	11:45 (5)	17:01	10:14	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:29	16:12	15:30	09:31 (1)
21	08:54	09:35 (1)	07:59	10:15	18:06	20:15	21:21	22:14	22:13	21:15	19:52	18:29	16:12	15:30	09:31 (1)
22	15:55	11:45 (5)	17:04	10:16	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30	09:31 (1)
23	08:53	09:34 (1)	07:57	10:17	18:09	20:17	21:23	22:15	22:12	21:12	19:50	18:26	16:10	15:30	09:31 (1)
24	15:57	11:45 (5)	17:06	10:18	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29	09:32 (1)
25	08:52	09:34 (1)	07:54	10:19	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:08	15:29	09:32 (1)
26	15:59	11:45 (5)	17:08	10:20	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29	09:32 (1)
27	08:51	09:33 (1)	07:52	10:21	18:13	20:22	21:27	22:17	22:09	21:07	19:44	18:20	16:06	15:29	09:32 (1)
28	16:00	11:44 (5)	17:11	10:22	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29	09:33 (1)
29	08:50	09:34 (1)	07:49	10:23	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04	15:29	09:33 (1)
30	16:02	11:44 (5)	17:13	10:24	18:18	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29	09:33 (1)
31	08:48	09:34 (1)	07:47	10:25	18:18	20:26	21:32	22:19	22:06	21:02	19:38	18:15	16:02	15:29	09:33 (1)
32	16:04	11:44 (5)	17:15	10:26	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29	09:33 (1)
33	08:47	09:33 (1)	07:45	10:27	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00	15:29	09:33 (1)
34	16:06	11:44 (5)	17:18	10:28	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29	09:33 (1)
35	08:46	09:34 (1)	07:42	10:29	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58	15:29	09:33 (1)
36	16:09	11:44 (5)	17:20	10:30	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29	09:33 (1)
37	08:44	09:34 (1)	07:40	10:31	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56	15:29	09:33 (1)
38	16:11	11:44 (5)	17:23	10:32	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29	09:33 (1)
39	08:43	09:34 (1)	07:37	10:33	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54	15:29	09:33 (1)
40	16:13	11:44 (5)	17:25	10:34	18:29	20:37	21:42	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
41	08:41	09:34 (1)	07:34	10:35	18:29	20:37	21:42	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
42	16:15	11:44 (5)	17:27	10:36	18:31	20:39	21:44	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
43	08:40	09:34 (1)	07:32	10:37	18:31	20:39	21:44	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
44	16:17	11:44 (5)	17:30	10:38	18:33	20:41	21:45	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
45	08:38	09:34 (1)	07:29	10:39	18:33	20:41	21:45	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
46	16:19	11:44 (5)	17:32	10:40	18:35	20:44	21:47	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
47	08:36	09:35 (1)	07:27	10:41	18:35	20:44	21:47	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
48	16:22	11:44 (5)	17:34	10:42	18:37	20:46	21:49	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
49	08:34	09:35 (1)	07:24	10:43	18:37	20:46	21:49	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
50	16:24	11:44 (5)	17:37	10:44	18:40	20:48	21:51	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
51	08:33	09:36 (1)	07:21	10:45	18:40	20:48	21:51	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
52	16:26	11:44 (5)	17:39	10:46	18:42	20:50	21:53	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
53	08:31	09:36 (1)	07:19	10:47	18:42	20:50	21:53	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
54	16:28	11:44 (5)	17:41	10:48	18:44	20:53	21:55	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
55	08:29	09:37 (1)	07:16	10:49	18:44	20:53	21:55	22:22	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
56	16:31	11:44 (5)	17:44	10:50	18:46	20:55	21:56	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
57	08:27	09:37 (1)	07:14	10:51	18:46	20:55	21:56	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
58	16:33	11:44 (5)	17:47	10:52	18:48	20:57	21:58	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
59	08:25	09:38 (1)	07:11	10:53	18:48	20:57	21:58	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
60	16:35	11:44 (5)	17:49	10:54	18:51	20:59	22:00	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
61	08:23	09:40 (1)	07:08	10:55	18:51	20:59	22:00	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
62	16:38	11:44 (5)	17:51	10:56	18:53	21:01	22:01	22:21	22:01	20:50	19:24	18:02	15:53	15:29	09:33 (1)
Potential sun hours	227	262	365	429	515	539	538	475	386	321	241	207	737	0.06	0.06
Total, worst case	775	54	365	429	515	539	538	475	386	321	241	207	737	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	85	10	365	429	515	539	538	475	386	321	241	207	737	0.06	0.06

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	20:17	18:53	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	04:24	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	06:39	05:20	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	05:17	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	15:34
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	05:13	04:20	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
	15:51	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	05:07	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	18:29	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	15:30
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	17:08	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	05:36	06:42	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	04:37	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	19:38	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	18:12	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	20:30	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
	16:09	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	15:54	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	15:30
21	08:41	07:35	06:19	05:53	04:44	04:15	04:48	05:51	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	15:49	15:30
23	08:38	07:29	06:13	05:48	04:41	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	04:16	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	19:07	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
	16:28	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	04:18	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	15:38	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		16:34		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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
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	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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	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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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 15:37
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 20:41	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												
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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
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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
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.												
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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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Total, worst case												
Sun reduction												
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Table layout: For each day in each month the following matrix apply

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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 16:35		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Kalnieš i - 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
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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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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	08:30 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	07:16 20:23	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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 18:54	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	06:39 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 16:49	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 15:34
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	05:13 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	08:01 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	04:17 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 15:30
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	06:42 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 22:06	05:39 21:02	06:45 19:38	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	04:42 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 18:27	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	05:51 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 15:50	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	07:01 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 20:36	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	04:32 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		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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	09:25 (7)	07:14	07:44 (8)	06:48	07:22 (9)	05:28	06:27 (5)	04:27	
	15:40		16:40	34 09:59 (7)	17:46	21 08:05 (8)	19:55	53 08:37 (6)	21:01	18 06:45 (5)	22:03	
2	09:00		08:19	09:25 (7)	07:11	07:43 (8)	06:45	07:22 (9)	05:25	06:29 (5)	04:26	
	15:41		16:42	34 09:59 (7)	17:48	23 08:06 (8)	19:57	50 08:35 (6)	21:04	15 06:44 (5)	22:04	
3	09:00		08:17	09:25 (7)	07:08	07:41 (8)	06:42	07:22 (9)	05:23	06:30 (5)	04:25	
	15:42		16:45	35 10:00 (7)	17:51	25 08:06 (8)	20:00	44 08:32 (6)	21:06	11 06:41 (5)	22:06	
4	08:59		08:15	09:25 (7)	07:06	07:41 (8)	06:39	07:23 (9)	05:21		04:23	
	15:44		16:47	35 10:00 (7)	17:53	25 08:06 (8)	20:02	39 08:31 (6)	21:08		22:07	
5	08:59		08:13	09:26 (7)	07:03	07:41 (8)	06:37	07:23 (9)	05:18		04:22	
	15:45		16:49	34 10:00 (7)	17:55	26 08:07 (8)	20:04	31 08:27 (6)	21:10		22:08	
6	08:58		08:10	09:26 (7)	07:00	07:40 (8)	06:34	07:24 (9)	05:16		04:21	
	15:47		16:52	34 10:00 (7)	17:57	27 08:07 (8)	20:06	14 07:38 (9)	21:12		22:10	
7	08:58		08:08	09:26 (7)	06:57	07:40 (8)	06:31	07:27 (9)	05:13		04:20	
	15:48		16:54	34 10:00 (7)	18:00	26 08:06 (8)	20:08	8 07:35 (9)	21:15		22:11	
8	08:57		08:06	09:27 (7)	06:55	07:40 (8)	06:28		05:11		04:20	
	15:50		16:57	33 10:00 (7)	18:02	26 08:06 (8)	20:11		21:17		22:12	
9	08:56		08:04	09:27 (7)	06:52	07:40 (8)	06:26		05:09		04:19	
	15:52		16:59	32 09:59 (7)	18:04	25 08:05 (8)	20:13		21:19		22:13	
10	08:55		08:01	09:29 (7)	06:49	07:41 (8)	06:23		05:07		04:18	
	15:53		17:01	29 09:58 (7)	18:06	24 08:05 (8)	20:15		21:21		22:14	
11	08:54		07:59	09:29 (7)	06:46	07:41 (8)	06:20		05:04		04:17	
	15:55		17:04	28 09:57 (7)	18:09	22 08:03 (8)	20:17		21:23		22:15	
12	08:53		07:57	09:30 (7)	06:44	07:42 (8)	06:17		05:02		04:17	
	15:57		17:06	26 09:56 (7)	18:11	20 08:02 (8)	20:19		21:25		22:16	
13	08:52		07:54	09:32 (7)	06:41	07:21 (6)	06:15		05:00		04:16	
	15:59		17:09	23 09:55 (7)	18:13	29 07:59 (8)	20:22		21:27		22:17	
14	08:51		07:52	09:33 (7)	06:38	07:17 (6)	06:12		04:58		04:16	
	16:01		17:11	19 09:52 (7)	18:15	31 07:56 (8)	20:24		21:29		22:18	
15	08:50		07:49	09:36 (7)	06:35	07:15 (6)	06:09	06:36 (5)	04:56		04:16	
	16:03		17:13	14 09:50 (7)	18:18	25 07:40 (6)	20:26	8 06:44 (5)	21:32		22:19	
16	08:48		07:47	09:41 (7)	06:33	07:13 (6)	06:07	06:33 (5)	04:54		04:15	
	16:05		17:16	4 09:45 (7)	18:20	28 07:41 (6)	20:28	13 06:46 (5)	21:34		22:19	
17	08:47		07:45		06:30	07:11 (6)	06:04	06:31 (5)	04:52		04:15	
	16:07		17:18		18:22	31 07:42 (6)	20:30	17 06:48 (5)	21:36		22:20	
18	08:46		07:42		06:27	07:10 (6)	06:01	06:28 (5)	04:50		04:15	
	16:09	3	09:41 (7)	17:20	18:24	32 07:42 (6)	20:33	21 06:49 (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	11	09:45 (7)	17:23	18:27	35 07:43 (6)	20:35	23 06:50 (5)	21:40		22:21	
20	08:43		07:37		06:21	07:07 (6)	05:56	06:26 (5)	04:46		04:15	
	16:13	15	09:47 (7)	17:25	18:29	36 07:43 (6)	20:37	24 06:50 (5)	21:42		22:21	
21	08:41		07:34		06:19	07:07 (6)	05:53	06:26 (5)	04:44		04:15	
	16:15	19	09:49 (7)	17:27	18:31	37 07:44 (6)	20:39	25 06:51 (5)	21:44		22:21	
22	08:40		07:32		06:16	07:06 (6)	05:51	06:25 (5)	04:42		04:15	
	16:17	22	09:51 (7)	17:30	18:33	38 07:44 (6)	20:42	26 06:51 (5)	21:45		22:22	
23	08:38		07:29		06:13	07:05 (6)	05:48	06:25 (5)	04:41		04:15	
	16:19	24	09:52 (7)	17:32	18:35	39 07:44 (6)	20:44	26 06:51 (5)	21:47		22:22	
24	08:36		07:27		06:10	06:36 (9)	05:45	06:24 (5)	04:39		04:16	
	16:22	25	09:53 (7)	17:34	18:38	39 07:43 (6)	20:46	26 06:50 (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	28	09:55 (7)	17:37	18:40	47 07:43 (6)	20:48	26 06:50 (5)	21:51		22:22	
26	08:33		07:22		06:05	06:31 (9)	05:40	06:24 (5)	04:36		04:17	
	16:26	29	09:56 (7)	17:39	7 07:58 (8)	50 07:43 (6)	20:50	25 06:49 (5)	21:53		22:22	
27	08:31		07:19		06:02	06:28 (9)	05:38	06:24 (5)	04:34		04:17	
	16:28	31	09:57 (7)	17:41	14 08:01 (8)	53 07:42 (6)	20:53	25 06:49 (5)	21:55		22:22	
28	08:29		07:16		05:59	06:25 (9)	05:35	06:25 (5)	04:32		04:18	
	16:31	32	09:58 (7)	17:44	18 08:04 (8)	57 07:41 (6)	20:55	24 06:49 (5)	21:56		22:21	
29	08:27		07:14		06:56	07:23 (9)	05:33	06:25 (5)	04:31		04:18	
	16:33	32	09:57 (7)		19:49	58 08:40 (6)	20:57	22 06:47 (5)	21:58		22:21	
30	08:25		07:12		06:53	07:22 (9)	05:30	06:26 (5)	04:30		04:19	
	16:35	33	09:58 (7)		19:51	57 08:39 (6)	20:59	20 06:46 (5)	22:00		22:21	
31	08:23		07:11		06:51	07:22 (9)			04:28			
	16:38	34	09:59 (7)		19:53	56 08:39 (6)			22:01			
Potential sun hours	227		262		365		429		515		539	
Total, worst case		338		487		1068		590		44		
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		37		95		430		251		26		

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163 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.

	July	August	September	October	November	December
1	04:20	05:09	06:15	07:19	08:04 (6)	07:28
	22:20	21:35	20:17	18:53	24	08:40 (8)
2	04:21	05:11	06:17	07:21	08:20 (8)	07:30
	22:20	21:33	20:15	18:51	21	08:41 (8)
3	04:22	05:13	06:19	07:23	08:18 (8)	07:32
	22:19	21:31	20:12	18:48	23	08:41 (8)
4	04:23	05:15	06:21	07:25	08:18 (8)	07:35
	22:18	21:29	20:09	18:45	25	08:43 (8)
5	04:24	05:17	06:23	07:27	08:17 (8)	07:37
	22:18	21:26	20:06	8	07:32 (9)	18:42
6	04:25	05:20	06:26	07:29	08:16 (8)	07:39
	22:17	21:24	20:04	13	07:34 (9)	18:40
7	04:26	05:22	06:28	07:31	08:15 (8)	07:41
	22:16	21:22	20:01	29	08:22 (6)	18:37
8	04:27	05:24	06:30	07:34	08:16 (8)	07:44
	22:15	21:20	19:58	39	08:25 (6)	18:34
9	04:29	05:26	06:32	07:36	08:16 (8)	07:46
	22:14	21:17	6	06:48 (5)	19:55	45
10	04:30	05:28	06:39 (5)	07:38	08:16 (8)	07:48
	22:13	21:15	12	06:51 (5)	19:52	49
11	04:32	05:30	06:37 (5)	07:40	08:16 (8)	07:51
	22:12	21:12	16	06:53 (5)	19:50	53
12	04:33	05:32	06:35 (5)	07:42	08:17 (8)	07:53
	22:10	21:10	19	06:54 (5)	19:47	55
13	04:34	05:34	06:34 (5)	07:45	08:18 (8)	07:55
	22:09	21:07	21	06:55 (5)	19:44	57
14	04:36	05:37	06:33 (5)	07:47	08:19 (8)	07:57
	22:08	21:05	23	06:56 (5)	19:41	58
15	04:38	05:39	06:32 (5)	07:49	08:21 (8)	08:00
	22:06	21:02	24	06:56 (5)	19:38	57
16	04:39	05:41	06:32 (5)	07:51	08:33 (8)	16:02
	22:05	21:00	25	06:57 (5)	19:36	55
17	04:41	05:43	06:31 (5)	07:53		16:00
	22:03	20:57	26	06:57 (5)	19:33	52
18	04:43	05:45	06:31 (5)	07:56		16:00
	22:02	20:55	26	06:57 (5)	19:30	47
19	04:44	05:47	06:30 (5)	07:58		15:56
	22:00	20:52	27	06:57 (5)	19:27	43
20	04:46	05:49	06:30 (5)	08:00		15:55
	21:59	20:50	27	06:57 (5)	19:24	38
21	04:48	05:51	06:30 (5)	08:02		15:53
	21:57	20:47	26	06:56 (5)	19:22	38
22	04:50	05:54	06:30 (5)	08:05		15:51
	21:55	20:44	26	06:56 (5)	19:19	37
23	04:52	05:56	06:31 (5)	08:07		15:48
	21:53	20:42	24	06:55 (5)	19:16	36
24	04:53	05:58	06:31 (5)	08:09		15:46
	21:52	20:39	23	06:54 (5)	19:13	35
25	04:55	06:00	06:32 (5)	07:12		15:45
	21:50	20:36	21	06:53 (5)	19:10	34
26	04:57	06:02	06:34 (5)	07:14	09:08 (7)	08:23
	21:48	20:34	17	06:51 (5)	19:07	31
27	04:59	06:04	06:36 (5)	07:16	8	09:16 (7)
	21:46	20:31	13	06:49 (5)	19:05	29
28	05:01	06:06	06:38 (5)	07:18	16	09:21 (7)
	21:44	20:28	8	06:46 (5)	19:02	26
29	05:03	06:09		07:21	20	09:22 (7)
	21:42	20:26		18:59	23	09:24 (7)
30	05:05	06:11		07:23	26	09:25 (7)
	21:40	20:23		18:56	31	08:38 (8)
31	05:07	06:13				
	21:38	20:20				
Potential sun hours	538	474	386	321	241	207
Total, worst case		410	1024	464	669	
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		207	473	131	52	

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

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

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Kastanas - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (478)
 Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed 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	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	07:23 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 20:01	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	07:03 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	
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	08:57 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	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	16:28 (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	
12	08:53 15:57	07:56 17:06	16:25 (2) 16:32 (2)	06:43 18:11	05:02 20:19	04:17 21:25	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	16:24 (2) 16:35 (2)	06:41 18:13	05:00 20:21	04:16 21:27	04:34 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	07:52 17:11	16:23 (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	07:57 16:03	08:52 15:29	
15	08:49 16:02	07:49 17:13	16:22 (2) 16:40 (2)	06:35 18:17	04:56 20:26	04:15 21:31	04:37 22:18	05:38 21:02	06:44 19:38	07:49 18:15	17:02 (2) 17:06 (2)	07:59 16:02	08:53 15:29
16	08:48 16:04	07:47 17:15	16:22 (2) 16:43 (2)	06:32 18:20	04:53 20:28	04:15 21:33	04:39 22:19	05:40 21:00	06:46 19:35	07:51 18:12	17:06 (2) 17:10 (2)	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	16:21 (2) 16:44 (2)	06:29 18:22	04:51 20:30	04:15 21:35	04:40 22:20	05:43 20:57	06:48 19:33	07:53 18:10	16:55 (2) 17:12 (2)	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	16:21 (2) 16:45 (2)	06:27 18:24	04:49 20:32	04:15 21:37	04:42 22:20	05:45 20:54	06:51 19:30	07:55 18:07	16:54 (2) 17:13 (2)	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	16:21 (2) 16:45 (2)	06:24 18:26	04:48 20:35	04:15 21:39	04:44 22:21	05:47 20:52	06:53 19:27	07:58 18:04	16:53 (2) 17:14 (2)	08:08 15:54	08:57 15:29
20	08:42 16:13	07:37 17:25	16:20 (2) 16:44 (2)	06:21 18:28	04:46 20:37	04:15 21:41	04:46 22:21	05:49 20:49	06:55 19:24	08:00 18:02	16:52 (2) 17:14 (2)	08:10 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	16:20 (2) 16:43 (2)	06:18 18:31	04:44 20:39	04:15 21:43	04:47 22:21	05:51 20:47	06:57 19:21	08:02 17:59	16:52 (2) 17:15 (2)	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	16:22 (2) 16:44 (2)	06:16 18:33	04:42 20:41	04:15 21:45	04:49 22:21	05:53 20:44	06:59 19:18	08:04 17:56	16:51 (2) 17:14 (2)	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	16:22 (2) 16:42 (2)	06:13 18:35	04:40 20:43	04:15 21:47	04:51 22:22	05:55 20:41	07:01 19:16	08:07 17:54	16:51 (2) 17:15 (2)	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	16:23 (2) 16:41 (2)	06:10 18:37	04:45 20:46	04:15 21:49	04:53 22:22	05:58 20:39	07:03 19:13	08:09 17:51	16:50 (2) 17:14 (2)	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	16:25 (2) 16:40 (2)	06:07 18:39	04:43 20:48	04:16 21:51	04:55 22:22	06:00 20:36	07:05 19:10	07:11 16:49	15:51 (2) 16:14 (2)	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	16:27 (2) 16:37 (2)	06:04 18:42	04:40 20:50	04:35 21:53	04:57 22:21	06:02 20:33	07:08 19:07	07:14 16:46	15:51 (2) 16:12 (2)	08:23 15:43	09:00 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 21:45	06:04 20:31	07:10 19:04	07:16 16:44	15:52 (2) 16:10 (2)	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 21:43	06:06 20:28	07:12 19:02	07:18 16:41	15:52 (2) 16:06 (2)	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	15:54 (2) 16:04 (2)	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	15:55 (2) 16:01 (2)	08:31 15:38	09:01 15:37
31	08:23 16:37		06:50 19:53	04:28 22:01	04:28 22:01	04:28 22:01	05:07 21:37	06:13 20:20	07:25 16:34	07:25 15:59 (2)	15:58 (2) 15:59 (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		277								282			
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		54								80			

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

No operational time reduction. It is assumed 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	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	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	07:23 18:48	08:36 15:35
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	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	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42	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	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	08:43 15:32
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	08:44 15:31
9	08:56 15:51	08:03 16:59	16:23 (2)	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	08:46 15:31
10	08:55 15:53	08:01 17:01	16:21 (2)	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	08:47 15:30
11	08:54 15:55	07:59 17:03	16:19 (2)	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	08:49 15:30
12	08:53 15:57	07:56 17:06	16:18 (2)	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	08:50 15:29
13	08:52 15:58	07:54 17:08	16:17 (2)	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	08:51 15:29
14	08:51 16:00	07:52 17:11	16:16 (2)	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	08:52 15:29
15	08:49 16:02	07:49 17:13	16:15 (2)	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	08:53 15:29
16	08:48 16:04	07:47 17:15	16:14 (2)	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	08:54 15:29
17	08:47 16:06	07:44 17:18	16:13 (2)	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	08:55 15:29
18	08:45 16:08	07:42 17:20	16:12 (2)	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	08:56 15:29
19	08:44 16:10	07:39 17:22	16:11 (2)	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	08:57 15:29
20	08:42 16:13	07:37 17:25	16:10 (2)	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	08:58 15:29
21	08:41 16:15	07:34 17:27	16:09 (2)	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	08:59 15:30
22	08:39 16:17	07:32 17:29	16:08 (2)	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	08:59 15:30
23	08:38 16:19	07:29 17:32	16:07 (2)	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	08:59 15:31
24	08:36 16:21	07:26 17:34	16:06 (2)	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	09:00 15:31
25	08:34 16:24	07:24 17:36	16:05 (2)	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	09:00 15:32
26	08:32 16:26	07:21 17:39	16:04 (2)	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	09:00 15:33
27	08:31 16:28	07:19 17:41	16:03 (2)	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	09:01 15:34
28	08:29 16:30	07:16 17:43	16:02 (2)	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	09:01 15:34
29	08:27 16:33		16:01 (2)	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	09:01 15:35
30	08:25 16:35		16:00 (2)	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	09:01 15:37
31	08:23 16:37		15:59 (2)	05:50 19:53	05:28 22:01	04:28 22:01	04:18 22:20	05:07 21:37	06:13 20:20	07:17 18:56	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		296							293		6	
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		58							83		0	

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

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

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 21:10	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		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_Nordex163 Shadow receptor: Karla Skalbes iela 11 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (642)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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
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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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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_Nordex163 Shadow receptor: Karla Skalbes iela 15 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (606)
Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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
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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	05:41 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
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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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. 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_Nordex163 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
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
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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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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
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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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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) []

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

No operational time reduction. It is assumed 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		07:27 16:32	15:35 (2) 15:56 (2)	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	15:37 (2) 15:54 (2)	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	07:23 18:48		07:32 16:27	15:37 (2) 15:51 (2)	08:36 15:35
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		07:34 16:25	15:39 (2) 15:49 (2)	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	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42		07:37 16:23	15:40 (2) 15:46 (2)	08:40 15:33
6	08:58 15:46	08:10 16:52	5	16:11 (2) 17:57	07:00 17:57	06:34 21:12	05:15 21:12	04:25 22:09	05:19 21:24	06:25 20:03	07:29 18:39		07:39 16:20		08:41 15:32
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11	08:54 15:55	07:59 17:03	24	16:06 (2) 18:08	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 16:10		08:49 15:30
12	08:53 15:57	07:56 17:06	25	16:05 (2) 18:11	06:43 18:11	06:17 20:19	05:02 21:25	04:17 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	25	16:05 (2) 18:15	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	07:49 17:13	26	16:04 (2) 18:17	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
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18	08:45 16:08	07:42 17:20	24	16:06 (2) 18:24	06:27 18:24	06:01 20:32	04:50 21:37	04:15 22:20	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	21	16:07 (2) 18:26	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21	05:47 20:52	06:53 19:27	07:58 18:04	16:44 (2)	08:08 16:52 (2)		08:57 15:29
20	08:42 16:13	07:37 17:25	20	16:07 (2) 18:28	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	05:49 20:49	06:55 19:24	07:58 18:02	8	08:00 16:41 (2)	16:52 (2)	08:58 15:29
21	08:41 16:15	07:34 17:27	16	16:09 (2) 18:31	06:18 18:31	05:53 20:39	04:44 21:43	04:15 22:21	05:51 20:47	06:57 19:21	08:02 17:59	14	08:02 16:57 (2)	16:39 (2) 16:52 (2)	08:58 15:30
22	08:39 16:17	07:32 17:29	13	16:25 (2) 18:33	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	05:53 20:44	06:59 19:18	08:04 17:57	18	08:04 16:37 (2)	16:58 (2) 17:02 (2)	08:59 15:30
23	08:38 16:19	07:29 17:32	3	16:11 (2) 18:35	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:22	05:55 20:41	07:01 19:16	08:07 17:54	21	08:07 16:59 (2)	16:37 (2) 16:52 (2)	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 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	24	08:09 16:35 (2)	16:59 (2) 17:03 (2)	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	25	07:11 16:00 (2)	15:35 (2) 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 21:53	04:16 22:21	04:57 21:47	06:02 20:33	07:08 19:07	07:14 16:46	26	07:08 16:00 (2)	15:34 (2) 15:43	09:00 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 21:45	06:04 20:31	07:10 19:04	07:16 16:44	25	07:10 16:00 (2)	15:35 (2) 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 21:43	06:06 20:28	07:12 19:02	07:18 16:41	26	07:12 16:00 (2)	15:34 (2) 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 21:41	06:08 20:25	07:14 18:59	07:20 16:39	25	07:14 16:00 (2)	15:35 (2) 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	25	07:16 16:00 (2)	15:34 (2) 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	24	07:25 15:59 (2)		09:00 15:38
Potential sun hours	227	262		365	429	515	539	538	474	386	321		241		207
Total, worst case			342										283		
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			66										80		

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Lejas Gerki - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (783)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

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	06:48 19:55	07:16 (8) 08:57 (7)	05:28 21:01
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	07:14 (8) 08:53 (7)	05:25 21:04
3	09:00 15:42	08:17 16:45	07:08 17:51	06:42 20:00	07:12 (8) 07:33 (8)	05:23 21:06
4	08:59 15:44	08:15 16:47	07:06 17:53	06:39 20:02	07:11 (8) 07:35 (8)	05:21 21:08
5	08:59 15:45	08:13 16:50	07:03 17:55	06:37 20:04	07:10 (8) 07:35 (8)	05:18 21:10
6	08:58 15:47	08:10 16:52	07:00 17:57	06:34 20:06	07:09 (8) 07:35 (8)	05:16 21:12
7	08:57 15:48	08:08 16:54	06:57 18:00	06:31 20:08	07:08 (8) 07:35 (8)	05:13 21:15
8	08:57 15:50	08:06 16:57	06:55 18:02	06:28 20:11	07:08 (8) 07:35 (8)	05:11 21:17
9	08:56 15:52	08:04 16:59	06:52 18:04	06:26 20:13	07:07 (8) 07:35 (8)	05:09 21:19
10	08:55 15:53	08:01 17:01	06:49 18:06	06:23 20:15	07:07 (8) 07:34 (8)	05:07 21:21
11	08:54 15:55	07:59 17:04	06:46 18:09	06:20 20:17	07:08 (8) 07:34 (8)	05:04 21:23
12	08:53 15:57	07:57 17:06	06:44 18:11	06:17 20:19	07:08 (8) 07:33 (8)	05:02 21:25
13	08:52 15:59	07:54 17:09	06:41 18:13	06:15 20:22	07:08 (8) 07:31 (8)	05:00 21:27
14	08:51 16:01	07:52 17:11	06:38 18:15	06:12 20:24	07:09 (8) 07:31 (8)	04:58 21:29
15	08:50 16:03	07:49 17:13	06:35 18:18	06:09 20:26	07:10 (8) 07:29 (8)	04:56 21:31
16	08:48 16:05	07:47 17:16	06:33 18:20	06:07 20:28	07:11 (8) 07:26 (8)	04:54 21:34
17	08:47 16:07	07:45 17:18	06:30 18:22	06:04 20:30	07:13 (8) 07:24 (8)	04:52 21:36
18	08:46 16:09	07:42 17:20	06:27 18:24	06:01 20:33	04:50 21:38	04:55 21:40
19	08:44 16:11	07:40 17:23	06:24 18:27	05:59 20:35	04:48 21:40	04:53 21:42
20	08:43 16:13	07:37 17:25	06:21 18:29	05:56 20:37	04:46 21:42	04:51 21:44
21	08:41 16:15	07:34 17:27	06:19 18:31	05:53 20:39	04:44 21:43	04:49 21:45
22	08:40 16:17	07:32 17:30	06:16 18:33	05:51 20:42	04:42 21:45	04:47 21:47
23	08:38 16:19	07:29 17:32	06:13 18:35	05:48 20:44	04:41 21:47	04:46 21:49
24	08:36 16:22	07:27 17:34	06:10 18:38	05:45 20:46	04:39 21:49	04:44 21:51
25	08:34 16:24	07:24 17:37	06:07 18:40	05:43 20:48	04:37 21:51	04:42 21:53
26	08:33 16:26	07:22 17:39	06:05 18:42	05:40 20:50	04:36 21:53	04:41 21:55
27	08:31 16:28	07:19 17:41	06:02 18:44	05:38 20:53	04:34 21:54	04:40 21:56
28	08:29 16:31	07:16 17:44	05:59 18:46	05:35 20:55	04:33 21:56	04:39 21:58
29	08:27 16:33		06:56 19:49	05:33 20:57	04:31 21:58	04:37 21:59
30	08:25 16:35		06:53 19:51	05:30 20:59	04:30 22:00	04:36 22:01
31	08:23 16:38		06:51 19:53	05:28 20:00	04:28 22:01	04:34 22:02
Potential sun hours	227	262	365	429	515	539
Total, worst case			953	447	1296	603
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			384	190	754	337

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Lejas Gerki - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (783)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	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	05:26 (5)	05:09	06:10 (6)	06:15	07:07 (8)	07:19	08:13 (7)	07:28	08:33	
	22:20	17 05:43 (5)	21:35	37 06:47 (6)	20:17	26 07:33 (8)	18:53	38 08:51 (7)	16:32	15:37	
2	04:21	05:26 (5)	05:11	06:11 (6)	06:17	07:06 (8)	07:21	08:14 (7)	07:30	08:35	
	22:20	17 05:43 (5)	21:33	36 06:47 (6)	20:15	27 07:33 (8)	18:51	36 08:50 (7)	16:30	15:36	
3	04:22	05:26 (5)	05:13	06:10 (6)	06:19	07:06 (8)	07:23	08:15 (7)	07:32	08:37	
	22:19	18 05:44 (5)	21:31	36 06:46 (6)	20:12	27 07:33 (8)	18:48	33 08:48 (7)	16:27	15:35	
4	04:23	05:26 (5)	05:15	06:10 (6)	06:21	07:05 (8)	07:25	08:17 (7)	07:35	08:38	
	22:18	18 05:44 (5)	21:29	35 06:45 (6)	20:09	27 07:32 (8)	18:45	30 08:47 (7)	16:25	15:34	
5	04:24	05:26 (5)	05:18	06:11 (6)	06:23	07:05 (8)	07:27	08:18 (7)	07:37	08:40	
	22:17	20 06:26 (6)	21:26	34 06:45 (6)	20:06	27 07:32 (8)	18:42	26 08:44 (7)	16:23	15:34	
6	04:25	05:26 (5)	05:20	06:11 (6)	06:26	07:05 (8)	07:29	08:20 (7)	07:39	08:42	
	22:17	27 06:30 (6)	21:24	33 06:44 (6)	20:04	26 07:31 (8)	18:40	21 08:41 (7)	16:21	15:33	
7	04:26	05:25 (5)	05:22	06:12 (6)	06:28	07:05 (8)	07:31	08:23 (7)	07:41	08:43	
	22:16	32 06:31 (6)	21:22	32 06:44 (6)	20:01	25 07:30 (8)	18:37	14 08:37 (7)	16:18	15:32	
8	04:28	05:25 (5)	05:24	06:12 (6)	06:30	07:05 (8)	07:34		07:44	08:45	
	22:15	35 06:33 (6)	21:19	31 06:43 (6)	19:58	24 07:29 (8)	18:34		16:16	15:31	
9	04:29	05:25 (5)	05:26	06:13 (6)	06:32	07:06 (8)	07:36		07:46	08:46	
	22:14	37 06:34 (6)	21:17	29 06:42 (6)	19:55	22 07:28 (8)	18:31		16:14	15:31	
10	04:30	05:25 (5)	05:28	06:14 (6)	06:34	07:07 (8)	07:38		07:48	08:47	
	22:13	39 06:35 (6)	21:15	27 06:41 (6)	19:52	33 08:46 (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	42 06:37 (6)	21:12	25 06:40 (6)	19:50	37 08:49 (7)	18:26		16:10	15:30	
12	04:33	05:25 (5)	05:32	06:17 (6)	06:38	07:11 (8)	07:42		07:53	08:50	
	22:10	44 06:38 (6)	21:10	21 06:38 (6)	19:47	34 08:51 (7)	18:23		16:08	15:30	
13	04:34	05:25 (5)	05:34	06:19 (6)	06:40	08:23 (7)	07:45		07:55	08:51	
	22:09	45 06:38 (6)	21:07	17 06:36 (6)	19:44	30 08:53 (7)	18:21		16:06	15:29	
14	04:36	05:25 (5)	05:37	06:22 (6)	06:42	08:21 (7)	07:47		07:57	08:52	
	22:08	48 06:40 (6)	21:05	11 06:33 (6)	19:41	33 08:54 (7)	18:18		16:04	15:29	
15	04:38	05:25 (5)	05:39		06:45	08:20 (7)	07:49		08:00	08:54	
	22:06	49 06:40 (6)	21:02		19:38	35 08:55 (7)	18:15		16:02	15:29	
16	04:39	05:26 (5)	05:41		06:47	08:18 (7)	07:51		08:02	08:55	
	22:05	50 06:41 (6)	21:00		19:36	38 08:56 (7)	18:13		16:00	15:29	
17	04:41	05:25 (5)	05:43		06:49	08:17 (7)	07:53		08:04	08:55	
	22:03	52 06:42 (6)	20:57		19:33	39 08:56 (7)	18:10		15:58	15:29	
18	04:43	05:26 (5)	05:45		06:51	08:16 (7)	07:56		08:06	08:56	
	22:02	53 06:43 (6)	20:55		19:30	41 08:57 (7)	18:07		15:56	15:29	
19	04:44	05:26 (5)	05:47		06:53	08:16 (7)	07:58		08:09	08:57	
	22:00	53 06:43 (6)	20:52		19:27	42 08:58 (7)	18:05		15:55	15:29	
20	04:46	05:26 (5)	05:49		06:55	08:15 (7)	08:00		08:11	08:58	
	21:59	55 06:44 (6)	20:50		19:24	43 08:58 (7)	18:02		15:53	15:30	
21	04:48	05:26 (5)	05:52		06:57	08:14 (7)	08:02		08:13	08:59	
	21:57	55 06:44 (6)	20:47		19:22	44 08:58 (7)	17:59		15:51	15:30	
22	04:50	05:27 (5)	05:54		06:59	08:14 (7)	08:05		08:15	08:59	
	21:55	55 06:45 (6)	20:44		19:19	44 08:58 (7)	17:57		15:50	15:31	
23	04:52	05:29 (5)	05:56		07:01	08:13 (7)	08:07		08:17	09:00	
	21:53	53 06:45 (6)	20:42		19:16	45 08:58 (7)	17:54		15:48	15:31	
24	04:53	05:30 (5)	05:58		07:04	08:13 (7)	08:09		08:19	09:00	
	21:51	52 06:45 (6)	20:39		19:13	44 08:57 (7)	17:52		15:46	15:32	
25	04:55	05:32 (5)	06:00		07:06	08:12 (7)	07:12		08:21	09:00	
	21:50	50 06:46 (6)	20:36		19:10	44 08:56 (7)	16:49		15:45	15:32	
26	04:57	05:34 (5)	06:02	07:16 (8)	07:08	08:12 (7)	07:14		08:23	09:01	
	21:48	47 06:46 (6)	20:34	11 07:27 (8)	19:07	44 08:56 (7)	16:47		15:44	15:33	
27	04:59	05:36 (5)	06:04	07:13 (8)	07:10	08:12 (7)	07:16		08:25	09:01	
	21:46	45 06:47 (6)	20:31	16 07:29 (8)	19:05	43 08:55 (7)	16:44		15:42	15:34	
28	05:01	05:37 (5)	06:06	07:11 (8)	07:12	08:13 (7)	07:18		08:27	09:01	
	21:44	42 06:46 (6)	20:28	20 07:31 (8)	19:02	42 08:55 (7)	16:42		15:41	15:35	
29	05:03	05:39 (5)	06:09	07:10 (8)	07:14	08:13 (7)	07:21		08:29	09:01	
	21:42	38 06:46 (6)	20:26	22 07:32 (8)	18:59	41 08:54 (7)	16:39		15:40	15:36	
30	05:05	06:10 (6)	06:11	07:09 (8)	07:16	08:13 (7)	07:23		08:31	09:01	
	21:40	37 06:47 (6)	20:23	23 07:32 (8)	18:56	40 08:53 (7)	16:37		15:39	15:37	
31	05:07	06:10 (6)	06:13	07:08 (8)			07:25			09:01	
	21:37	37 06:47 (6)	20:20	25 07:33 (8)			16:34			15:38	
Potential sun hours	538		474		386		321		241	207	
Total, worst case		1262		521		1067		198			
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		593		263		493		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	07:16 20:22	07:23 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163 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	09:37 (7) 11:04 (7)	06:48 19:55	10:41 (7) 21:01	05:28 29
2	09:00 15:41	08:19 16:42	07:11 17:48	09:36 (7) 11:05 (7)	06:45 19:57	10:43 (7) 21:04	05:25 34
3	09:00 15:42	08:17 16:45	07:08 17:51	09:36 (7) 11:05 (7)	06:42 20:00	07:28 (8) 21:06	05:23 36
4	08:59 15:44	08:15 16:47	07:05 17:53	09:35 (7) 11:05 (7)	06:39 20:02	07:25 (8) 21:08	05:21 33
5	08:59 15:45	08:13 16:49	07:03 17:55	09:35 (7) 11:05 (7)	06:37 20:04	07:21 (8) 21:10	05:18 28
6	08:58 15:47	08:10 16:52	07:00 17:57	09:34 (7) 11:05 (7)	06:34 20:06	07:19 (8) 21:12	05:16 24
7	08:57 15:48	08:08 16:54	06:57 18:00	09:34 (7) 11:05 (7)	06:31 20:08	07:17 (8) 21:14	05:13 26
8	08:57 15:50	08:06 16:57	10:16 (7) 18:02	06:55 11:05 (7)	09:33 (7) 20:11	07:16 (8) 21:17	05:11 35
9	08:56 15:52	08:04 16:59	10:09 (7) 18:04	06:52 11:04 (7)	09:32 (7) 20:13	07:14 (8) 21:19	05:09 38
10	08:55 15:53	08:01 17:01	10:06 (7) 18:06	06:49 11:05 (7)	09:33 (7) 20:15	07:12 (8) 21:21	05:07 40
11	08:54 15:55	07:59 17:04	10:02 (7) 18:09	06:46 11:05 (7)	09:32 (7) 20:17	07:12 (8) 21:23	05:04 41
12	08:53 15:57	07:57 17:06	09:59 (7) 18:11	06:44 11:04 (7)	07:10 (10) 20:19	07:11 (8) 21:25	05:02 42
13	08:52 15:59	07:54 17:08	09:58 (7) 18:13	06:41 11:03 (7)	07:07 (10) 20:22	07:09 (8) 21:27	05:00 44
14	08:51 16:01	07:52 17:11	09:55 (7) 18:15	06:38 11:03 (7)	07:04 (10) 20:24	07:09 (8) 21:29	04:58 45
15	08:50 16:03	07:49 17:13	09:54 (7) 18:18	06:35 11:03 (7)	07:02 (10) 20:26	07:08 (8) 21:31	04:56 46
16	08:48 16:05	07:47 17:16	09:52 (7) 18:20	06:33 11:02 (7)	07:01 (10) 20:28	07:07 (8) 21:34	04:54 46
17	08:47 16:07	07:45 17:18	09:50 (7) 18:22	06:30 11:01 (7)	07:00 (10) 20:30	07:08 (8) 21:36	04:52 46
18	08:46 16:09	07:42 17:20	09:49 (7) 18:24	06:27 11:00 (7)	07:00 (10) 20:33	07:07 (8) 21:38	04:50 46
19	08:44 16:11	07:40 17:23	09:47 (7) 18:26	06:24 10:59 (7)	06:59 (10) 20:35	07:07 (8) 21:40	04:48 46
20	08:43 16:13	07:37 17:25	09:46 (7) 18:29	06:21 10:57 (7)	06:59 (10) 20:37	07:07 (8) 21:42	04:46 45
21	08:41 16:15	07:34 17:27	09:45 (7) 18:31	06:19 10:57 (7)	07:00 (10) 20:39	07:07 (8) 21:43	04:44 45
22	08:40 16:17	07:32 17:30	09:44 (7) 18:33	06:16 10:55 (7)	07:00 (10) 20:41	07:07 (8) 21:45	04:42 44
23	08:38 16:19	07:29 17:32	09:42 (7) 18:35	06:13 10:54 (7)	07:00 (10) 20:44	07:07 (8) 21:47	04:41 44
24	08:36 16:22	07:27 17:34	09:42 (7) 18:38	06:10 10:52 (7)	07:01 (10) 20:46	07:07 (8) 21:49	04:39 43
25	08:34 16:24	07:24 17:37	09:41 (7) 18:40	06:07 10:50 (7)	07:02 (10) 20:48	07:08 (8) 21:51	04:37 41
26	08:33 16:26	07:21 17:39	09:40 (7) 18:42	06:05 10:48 (7)	07:05 (10) 20:50	07:08 (8) 21:53	04:36 40
27	08:31 16:28	07:19 17:41	09:38 (7) 18:44	06:02 10:47 (7)	09:35 (7) 20:53	07:09 (8) 21:54	04:34 38
28	08:29 16:31	07:16 17:44	09:38 (7) 18:46	05:59 10:44 (7)	09:36 (7) 20:55	07:10 (8) 21:56	04:32 36
29	08:27 16:33		11:04 (7) 19:49	05:56 10:37 (7)	10:37 (7) 20:53	07:10 (8) 21:58	04:31 34
30	08:25 16:35			06:53 10:38 (7)	10:38 (7) 20:50	07:11 (8) 21:59	04:30 32
31	08:23 16:38			06:51 10:40 (7)	11:39 (7) 20:59	07:43 (8) 21:59	04:28 19
Potential sun hours	227	262	365	429	515	539	52
Total, worst case		1285	2887	1264	868		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		250	1163	538	505		29

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_Nordex163 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.

	July	August	September	October	November	December				
1	04:20	05:09	05:56 (9)	06:15	07:11 (8)	07:18	07:48 (10)	07:28	09:35 (7)	08:33
	22:20	21:35	30 06:26 (9)	20:17	41 07:52 (8)	18:53	103 11:43 (7)	16:32	32 10:07 (7)	15:37
2	04:21	05:11	05:56 (9)	06:17	07:11 (8)	07:21	07:50 (10)	07:30	09:40 (7)	08:35
	22:19	21:33	30 06:26 (9)	20:15	40 07:51 (8)	18:51	98 11:43 (7)	16:30	23 10:03 (7)	15:36
3	04:22	05:13	05:56 (9)	06:19	07:12 (8)	07:23	10:10 (7)	07:32	09:48 (7)	08:37
	22:19	21:31	29 06:25 (9)	20:12	38 07:50 (8)	18:48	92 11:42 (7)	16:27	8 09:56 (7)	15:35
4	04:23	05:15	05:56 (9)	06:21	07:13 (8)	07:25	10:10 (7)	07:34		08:38
	22:18	21:29	28 06:24 (9)	20:09	35 07:48 (8)	18:45	93 11:43 (7)	16:25		15:34
5	04:24	05:17	05:57 (9)	06:23	07:14 (8)	07:27	10:10 (7)	07:37		08:40
	22:17	21:26	26 06:23 (9)	20:06	33 07:47 (8)	18:42	92 11:42 (7)	16:23		15:34
6	04:25	05:20	05:58 (9)	06:26	07:15 (8)	07:29	10:10 (7)	07:39		08:42
	22:17	21:24	25 06:23 (9)	20:04	30 07:45 (8)	18:40	91 11:41 (7)	16:21		15:33
7	04:26	05:22	05:59 (9)	06:28	07:16 (8)	07:31	10:09 (7)	07:41		08:43
	22:16	21:22	23 06:22 (9)	20:01	43 11:07 (7)	18:37	92 11:41 (7)	16:18		15:32
8	04:27	06:05 (9)	05:24	06:00 (9)	06:30	07:19 (8)	07:34	10:10 (7)	07:44	08:45
	22:15	7 06:12 (9)	21:19	31 07:41 (8)	19:58	50 11:14 (7)	18:34	91 11:41 (7)	16:16	15:31
9	04:29	06:04 (9)	05:26	06:01 (9)	06:32	07:22 (8)	07:36	10:10 (7)	07:46	08:46
	22:14	10 06:14 (9)	21:17	36 07:45 (8)	19:55	52 11:19 (7)	18:31	90 11:40 (7)	16:14	15:31
10	04:30	06:02 (9)	05:28	06:04 (9)	06:34	10:37 (7)	07:38	10:10 (7)	07:48	08:47
	22:13	13 06:15 (9)	21:15	35 07:47 (8)	19:52	45 11:22 (7)	18:29	89 11:39 (7)	16:12	15:30
11	04:32	06:02 (9)	05:30	06:07 (9)	06:36	10:34 (7)	07:40	10:10 (7)	07:51	08:49
	22:11	15 06:17 (9)	21:12	32 07:49 (8)	19:50	51 11:25 (7)	18:26	88 11:38 (7)	16:10	15:30
12	04:33	06:01 (9)	05:32	07:21 (8)	06:38	10:31 (7)	07:42	10:11 (7)	07:53	08:50
	22:10	17 06:18 (9)	21:10	30 07:51 (8)	19:47	57 11:28 (7)	18:23	87 11:38 (7)	16:08	15:30
13	04:34	06:00 (9)	05:34	07:20 (8)	06:40	10:29 (7)	07:45	10:11 (7)	07:55	08:51
	22:09	18 06:18 (9)	21:07	32 07:52 (8)	19:44	61 11:30 (7)	18:21	86 11:37 (7)	16:06	15:29
14	04:36	06:00 (9)	05:37	07:18 (8)	06:42	10:27 (7)	07:47	10:11 (7)	07:57	08:52
	22:08	20 06:20 (9)	21:05	35 07:53 (8)	19:41	65 11:32 (7)	18:18	85 11:36 (7)	16:04	15:29
15	04:38	05:59 (9)	05:39	07:17 (8)	06:45	10:26 (7)	07:49	10:12 (7)	08:00	08:54
	22:06	22 06:21 (9)	21:02	37 07:54 (8)	19:38	67 11:33 (7)	18:15	84 11:36 (7)	16:02	15:29
16	04:39	05:59 (9)	05:41	07:16 (8)	06:47	10:24 (7)	07:51	10:12 (7)	08:02	08:55
	22:05	23 06:22 (9)	21:00	39 07:55 (8)	19:36	71 11:35 (7)	18:12	82 11:34 (7)	16:00	15:29
17	04:41	05:58 (9)	05:43	07:15 (8)	06:49	07:55 (10)	07:53	10:12 (7)	08:04	08:55
	22:03	24 06:22 (9)	20:57	40 07:55 (8)	19:33	78 11:36 (7)	18:10	81 11:33 (7)	15:58	15:29
18	04:43	05:58 (9)	05:45	07:14 (8)	06:51	07:50 (10)	07:56	10:13 (7)	08:06	08:56
	22:02	25 06:23 (9)	20:55	42 07:56 (8)	19:30	89 11:37 (7)	18:07	80 11:33 (7)	15:56	15:29
19	04:44	05:57 (9)	05:47	07:14 (8)	06:53	07:48 (10)	07:58	10:14 (7)	08:08	08:57
	22:00	26 06:23 (9)	20:52	42 07:56 (8)	19:27	94 11:38 (7)	18:05	77 11:31 (7)	15:55	15:29
20	04:46	05:57 (9)	05:49	07:13 (8)	06:55	07:47 (10)	08:00	10:15 (7)	08:11	08:58
	21:59	27 06:24 (9)	20:50	44 07:57 (8)	19:24	100 11:40 (7)	18:02	76 11:31 (7)	15:53	15:30
21	04:48	05:56 (9)	05:51	07:12 (8)	06:57	07:46 (10)	08:02	10:16 (7)	08:13	08:58
	21:57	28 06:24 (9)	20:47	45 07:57 (8)	19:22	104 11:41 (7)	17:59	73 11:29 (7)	15:51	15:30
22	04:50	05:56 (9)	05:54	07:12 (8)	06:59	07:44 (10)	08:05	10:16 (7)	08:15	08:59
	21:55	29 06:25 (9)	20:44	45 07:57 (8)	19:19	107 11:41 (7)	17:57	71 11:27 (7)	15:50	15:31
23	04:52	05:56 (9)	05:56	07:11 (8)	07:01	07:44 (10)	08:07	10:18 (7)	08:17	09:00
	21:53	30 06:26 (9)	20:42	46 07:57 (8)	19:16	109 11:42 (7)	17:54	68 11:26 (7)	15:48	15:31
24	04:53	05:55 (9)	05:58	07:11 (8)	07:04	07:43 (10)	08:09	10:19 (7)	08:19	09:00
	21:51	30 06:25 (9)	20:39	46 07:57 (8)	19:13	111 11:42 (7)	17:52	65 11:24 (7)	15:46	15:32
25	04:55	05:55 (9)	06:00	07:11 (8)	07:06	07:42 (10)	07:11	09:20 (7)	08:21	09:00
	21:50	31 06:26 (9)	20:36	46 07:57 (8)	19:10	112 11:42 (7)	16:49	63 10:23 (7)	15:45	15:32
26	04:57	05:56 (9)	06:02	07:10 (8)	07:08	07:42 (10)	07:14	09:21 (7)	08:23	09:01
	21:48	30 06:26 (9)	20:34	46 07:56 (8)	19:07	114 11:43 (7)	16:47	60 10:21 (7)	15:44	15:33
27	04:59	05:56 (9)	06:04	07:10 (8)	07:10	07:42 (10)	07:16	09:24 (7)	08:25	09:01
	21:46	31 06:27 (9)	20:31	46 07:56 (8)	19:05	113 11:43 (7)	16:44	56 10:20 (7)	15:42	15:34
28	05:01	05:55 (9)	06:06	07:10 (8)	07:12	07:43 (10)	07:18	09:25 (7)	08:27	09:01
	21:44	31 06:26 (9)	20:28	45 07:55 (8)	19:02	113 11:44 (7)	16:42	52 10:17 (7)	15:41	15:35
29	05:03	05:55 (9)	06:09	07:10 (8)	07:14	07:44 (10)	07:21	09:27 (7)	08:29	09:01
	21:42	31 06:26 (9)	20:26	45 07:55 (8)	18:59	110 11:43 (7)	16:39	49 10:16 (7)	15:40	15:36
30	05:05	05:55 (9)	06:11	07:10 (8)	07:16	07:46 (10)	07:23	09:29 (7)	08:31	09:01
	21:40	31 06:26 (9)	20:23	44 07:54 (8)	18:56	106 11:43 (7)	16:37	44 10:13 (7)	15:38	15:37
31	05:07	05:56 (9)	06:13	07:11 (8)			07:25	09:32 (7)		09:01
	21:37	30 06:26 (9)	20:20	42 07:53 (8)			16:34	38 10:10 (7)		15:38
Potential sun hours	538		474		386		321		241	207
Total, worst case		579		1162		2239		2396		63
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		272		586		1035		678		5

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

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

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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			07:14		08:09 (6)	06:48		07:29 (5)	05:28			04:27		
	15:40	4	09:47 (7)	16:40			17:46	27	08:36 (6)	19:55	21	07:50 (5)	21:01			22:03		
2	09:00		09:43 (7)	08:19			07:11		08:09 (6)	06:45		07:30 (5)	05:25			04:26		
	15:41	6	09:49 (7)	16:42			17:48	26	08:35 (6)	19:57	18	07:48 (5)	21:04			22:04		
3	09:00		09:42 (7)	08:17			07:08		08:10 (6)	06:42		07:30 (5)	05:23			04:25		
	15:42	9	09:51 (7)	16:45			17:51	23	08:33 (6)	20:00	17	07:47 (5)	21:06			22:06		
4	08:59		09:41 (7)	08:15			07:06		08:11 (6)	06:39		07:33 (5)	05:21			04:23		
	15:44	11	09:52 (7)	16:47			17:53	22	08:33 (6)	20:02	12	07:45 (5)	21:08			22:07		
5	08:59		09:40 (7)	08:13			07:03		08:13 (6)	06:37		07:36 (5)	05:18			04:22		
	15:45	13	09:53 (7)	16:49			17:55	18	08:31 (6)	20:04	5	07:41 (5)	21:10			22:08		
6	08:58		09:39 (7)	08:10			07:00		08:15 (6)	06:34			05:16			04:21		
	15:47	15	09:54 (7)	16:52			17:57	13	08:28 (6)	20:06			21:12			22:10		
7	08:58		09:39 (7)	08:08			06:57			06:31			05:13			04:20		
	15:48	16	09:55 (7)	16:54			18:00			20:08			21:15			22:11		
8	08:57		09:39 (7)	08:06			06:55			06:28			05:11			04:20		
	15:50	17	09:56 (7)	16:57			18:02			20:11			21:17			22:12		
9	08:56		09:39 (7)	08:04			06:52			06:26			05:09			04:19		
	15:51	18	09:57 (7)	16:59			18:04			20:13			21:19			22:13		
10	08:55		09:39 (7)	08:01			06:49			06:23			05:07			04:18		
	15:53	19	09:58 (7)	17:01			18:06			20:15			21:21			22:14		
11	08:54		09:39 (7)	07:59			06:46			06:20			05:04			04:17		
	15:55	21	10:00 (7)	17:04			18:09			20:17			21:23			22:15		
12	08:53		09:38 (7)	07:57			06:44			06:17			05:02			04:17		
	15:57	22	10:00 (7)	17:06			18:11			20:19			21:25			22:16		
13	08:52		09:39 (7)	07:54			06:41			06:15			05:00			04:16		
	15:59	22	10:01 (7)	17:09			18:13			20:22			21:27			22:17		
14	08:51		09:38 (7)	07:52			06:38			06:12			04:58			04:16		
	16:01	23	10:01 (7)	17:11			18:15			20:24			21:29			22:18		
15	08:50		09:39 (7)	07:50			06:35			06:09			04:56			04:16		
	16:03	24	10:03 (7)	17:13			18:18			20:26			21:32			22:19		
16	08:48		09:39 (7)	07:47		08:21 (6)	06:33			06:07			04:54			04:15		
	16:05	24	10:03 (7)	17:16	5	08:26 (6)	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	25	10:03 (7)	17:18	14	08:30 (6)	18:22			20:30			21:36			22:20		
18	08:46		09:39 (7)	07:42		08:15 (6)	06:27			06:01			04:50			04:15		
	16:09	25	10:04 (7)	17:20	18	08:33 (6)	18:24			20:33			21:38			22:20		
19	08:44		09:39 (7)	07:40		08:13 (6)	06:24			05:59			04:48			04:15		
	16:11	26	10:05 (7)	17:23	21	08:34 (6)	18:27			20:35			21:40			22:21		
20	08:43		09:40 (7)	07:37		08:11 (6)	06:21			05:56			04:46			04:15		
	16:13	25	10:05 (7)	17:25	24	08:35 (6)	18:29			20:37			21:42			22:21		
21	08:41		09:40 (7)	07:35		08:11 (6)	06:19			05:53			04:44			04:15		
	16:15	25	10:05 (7)	17:27	25	08:36 (6)	18:31			20:39			21:44			22:21		
22	08:40		09:40 (7)	07:32		08:10 (6)	06:16		06:42 (5)	05:51			04:42			04:15		
	16:17	25	10:05 (7)	17:30	27	08:37 (6)	18:33	6	06:48 (5)	20:42			21:45			22:22		
23	08:38		09:41 (7)	07:29		08:09 (6)	06:13		06:39 (5)	05:48			04:41			04:15		
	16:19	24	10:05 (7)	17:32	28	08:37 (6)	18:35	11	06:50 (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	24	10:05 (7)	17:34	29	08:38 (6)	18:38	15	06:51 (5)	20:46			21:49			22:22		
25	08:35		09:42 (7)	07:24		08:09 (6)	06:07		06:33 (5)	05:43			04:37			04:16		
	16:24	23	10:05 (7)	17:37	28	08:37 (6)	18:40	18	06:51 (5)	20:48			21:51			22:22		
26	08:33		09:43 (7)	07:22		08:08 (6)	06:05		06:31 (5)	05:40			04:36			04:17		
	16:26	22	10:05 (7)	17:39	29	08:37 (6)	18:42	22	06:53 (5)	20:50			21:53			22:22		
27	08:31		09:44 (7)	07:19		08:08 (6)	06:02		06:30 (5)	05:38			04:34			04:17		
	16:28	20	10:04 (7)	17:41	28	08:36 (6)	18:44	23	06:53 (5)	20:53			21:55			22:22		
28	08:29		09:45 (7)	07:16		08:09 (6)	05:59		06:29 (5)	05:35			04:32			04:18		
	16:31	19	10:04 (7)	17:44	28	08:37 (6)	18:46	23	06:52 (5)	20:55			21:56			22:21		
29	08:27		09:46 (7)				06:56		07:29 (5)	05:33			04:31			04:18		
	16:33	16	10:02 (7)				19:49	23	07:52 (5)	20:57			21:58			22:21		
30	08:25		09:48 (7)				06:53		07:28 (5)	05:30			04:30			04:19		
	16:35	13	10:01 (7)				19:51	23	07:51 (5)	20:59			22:00			22:21		
31	08:23		09:50 (7)				06:51		07:29 (5)				04:28					
	16:38	9	09:59 (7)				19:53	22	07:51 (5)				22:01					
Potential sun hours	227			262			365			429			515			539		
Total, worst case		585			304			315			73							
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		64			59			127			31							

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	07:39	08:42
	22:17	21:24	20:04	18:40	16:21	15:33
7	04:26	05:22	06:28	07:31	08:52 (6)	07:41
	22:16	21:22	20:01	5 07:36 (5)	18:37	9 09:01 (6)
8	04:27	05:24	06:30	07:27 (5)	07:34	08:49 (6)
	22:15	21:20	19:58	12 07:39 (5)	18:34	16 09:05 (6)
9	04:29	05:26	06:32	07:25 (5)	07:36	08:47 (6)
	22:14	21:17	19:55	16 07:41 (5)	18:31	19 09:06 (6)
10	04:30	05:28	06:34	07:23 (5)	07:38	08:45 (6)
	22:13	21:15	19:52	19 07:42 (5)	18:29	22 09:07 (6)
11	04:31	05:30	06:36	07:22 (5)	07:40	08:44 (6)
	22:12	21:12	19:50	20 07:42 (5)	18:26	25 09:09 (6)
12	04:33	05:32	06:38	07:21 (5)	07:42	08:43 (6)
	22:10	21:10	19:47	21 07:42 (5)	18:23	26 09:09 (6)
13	04:34	05:34	06:40	07:20 (5)	07:45	08:42 (6)
	22:09	21:07	19:44	22 07:42 (5)	18:21	27 09:09 (6)
14	04:36	05:37	06:42	07:19 (5)	07:47	08:41 (6)
	22:08	21:05	19:41	23 07:42 (5)	18:18	28 09:09 (6)
15	04:38	05:39	06:45	07:19 (5)	07:49	08:41 (6)
	22:06	21:02	19:38	23 07:42 (5)	18:15	29 09:10 (6)
16	04:39	05:41	06:47	07:18 (5)	07:51	08:40 (6)
	22:05	21:00	19:36	23 07:41 (5)	18:13	29 09:09 (6)
17	04:41	05:43	06:49	07:18 (5)	07:54	08:41 (6)
	22:03	20:57	19:33	22 07:40 (5)	18:10	28 09:09 (6)
18	04:43	05:45	06:51	07:20 (5)	07:56	08:40 (6)
	22:02	20:55	19:30	19 07:39 (5)	18:07	29 09:09 (6)
19	04:44	05:47	06:53	07:23 (5)	07:58	08:40 (6)
	22:00	20:52	19:27	16 07:39 (5)	18:05	28 09:08 (6)
20	04:46	05:49	06:55	07:25 (5)	08:00	08:41 (6)
	21:59	20:50	19:24	12 07:37 (5)	18:02	26 09:07 (6)
21	04:48	05:51	06:57	07:27 (5)	08:02	08:41 (6)
	21:57	20:47	19:22	7 07:34 (5)	17:59	25 09:06 (6)
22	04:50	05:54	06:59		08:05	08:43 (6)
	21:55	20:44	19:19		17:57	23 09:06 (6)
23	04:51	05:56	07:01		08:07	08:44 (6)
	21:53	20:42	19:16		17:54	20 09:04 (6)
24	04:53	05:58	07:04		08:09	08:45 (6)
	21:52	20:39	19:13		17:52	16 09:01 (6)
25	04:55	06:00	07:06		07:12	07:48 (6)
	21:50	20:36	19:10		16:49	11 07:59 (6)
26	04:57	06:02	07:08		07:14	08:23
	21:48	20:34	19:07		16:47	15:44
27	04:59	06:04	07:10		07:16	08:25
	21:46	20:31	19:05		16:44	15:42
28	05:01	06:06	07:12		07:18	08:27
	21:44	20:28	19:02		16:42	15:41
29	05:03	06:09	07:14		07:21	08:29
	21:42	20:26	18:59		16:39	15:40
30	05:05	06:11	07:16		07:23	08:31
	21:40	20:23	18:56		16:37	15:38
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			260	436	437	151
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			120	123	34	9

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		08:23 (6)	06:48		07:37 (5)	05:28			04:27		
	15:40	19	10:05 (7)	16:40			17:46	21	08:44 (6)	19:55	18	07:55 (5)	21:01			22:03		
2	09:00		09:47 (7)	08:19			07:11		08:24 (6)	06:45		07:38 (5)	05:25			04:26		
	15:41	19	10:06 (7)	16:42			17:48	18	08:42 (6)	19:57	15	07:53 (5)	21:04			22:04		
3	09:00		09:47 (7)	08:17			07:08		08:26 (6)	06:42		07:40 (5)	05:23			04:25		
	15:42	20	10:07 (7)	16:45			17:51	13	08:39 (6)	20:00	9	07:49 (5)	21:06			22:06		
4	08:59		09:47 (7)	08:15			07:06			06:39			05:21			04:23		
	15:44	20	10:07 (7)	16:47			17:53			20:02			21:08			22:07		
5	08:59		09:47 (7)	08:13			07:03			06:37			05:18			04:22		
	15:45	21	10:08 (7)	16:49			17:55			20:04			21:10			22:08		
6	08:58		09:47 (7)	08:10			07:00			06:34			05:16			04:21		
	15:47	21	10:08 (7)	16:52			17:57			20:06			21:12			22:10		
7	08:58		09:47 (7)	08:08		08:39 (8)	06:57			06:31			05:13			04:20		
	15:48	22	10:09 (7)	16:54	1	08:40 (8)	18:00			20:08			21:15			22:11		
8	08:57		09:47 (7)	08:06		08:37 (8)	06:55			06:28			05:11			04:20		
	15:50	23	10:10 (7)	16:57	7	08:44 (8)	18:02			20:11			21:17			22:12		
9	08:56		09:47 (7)	08:04		08:34 (8)	06:52			06:26			05:09			04:19		
	15:51	24	10:11 (7)	16:59	11	08:45 (8)	18:04			20:13			21:19			22:13		
10	08:55		09:48 (7)	08:01		08:32 (8)	06:49			06:23			05:07			04:18		
	15:53	24	10:12 (7)	17:01	15	08:47 (8)	18:06			20:15			21:21			22:14		
11	08:54		09:48 (7)	07:59		08:29 (8)	06:46			06:20			05:04			04:17		
	15:55	25	10:13 (7)	17:04	19	08:48 (8)	18:09			20:17			21:23			22:15		
12	08:53		09:48 (7)	07:57		08:29 (8)	06:44			06:17			05:02			04:17		
	15:57	25	10:13 (7)	17:06	20	08:49 (8)	18:11			20:19			21:25			22:16		
13	08:52		09:49 (7)	07:54		08:28 (8)	06:41			06:15			05:00			04:16		
	15:59	24	10:13 (7)	17:09	21	08:49 (8)	18:13			20:22			21:27			22:17		
14	08:51		09:48 (7)	07:52		08:26 (6)	06:38			06:12			04:58			04:16		
	16:01	25	10:13 (7)	17:11	23	08:49 (8)	18:15			20:24			21:29			22:18		
15	08:50		09:49 (7)	07:50		08:25 (6)	06:35			06:09			04:56			04:16		
	16:03	25	10:14 (7)	17:13	24	08:49 (8)	18:18			20:26			21:32			22:19		
16	08:48		09:49 (7)	07:47		08:23 (6)	06:33			06:07			04:54			04:15		
	16:05	25	10:14 (7)	17:16	26	08:49 (8)	18:20			20:28			21:34			22:19		
17	08:47		09:49 (7)	07:45		08:22 (6)	06:30			06:04			04:52			04:15		
	16:07	25	10:14 (7)	17:18	26	08:48 (8)	18:22			20:30			21:36			22:20		
18	08:46		09:51 (7)	07:42		08:22 (6)	06:27			06:01			04:50			04:15		
	16:09	24	10:15 (7)	17:20	27	08:49 (6)	18:24			20:33			21:38			22:20		
19	08:44		09:51 (7)	07:40		08:21 (6)	06:24			05:59			04:48			04:15		
	16:11	24	10:15 (7)	17:23	28	08:49 (6)	18:27			20:35			21:40			22:21		
20	08:43		09:51 (7)	07:37		08:20 (6)	06:21		06:47 (5)	05:56			04:46			04:15		
	16:13	24	10:15 (7)	17:25	29	08:49 (6)	18:29	8	06:55 (5)	20:37			21:42			22:21		
21	08:41		09:52 (7)	07:35		08:20 (6)	06:19		06:45 (5)	05:53			04:44			04:15		
	16:15	23	10:15 (7)	17:27	30	08:50 (6)	18:31	12	06:57 (5)	20:39			21:44			22:21		
22	08:40		09:52 (7)	07:32		08:20 (6)	06:16		06:42 (5)	05:51			04:42			04:15		
	16:17	23	10:15 (7)	17:30	29	08:49 (6)	18:33	17	06:59 (5)	20:42			21:45			22:22		
23	08:38		09:53 (7)	07:29		08:19 (6)	06:13		06:39 (5)	05:48			04:41			04:15		
	16:19	22	10:15 (7)	17:32	30	08:49 (6)	18:35	20	06:59 (5)	20:44			21:47			22:22		
24	08:36		09:54 (7)	07:27		08:20 (6)	06:10		06:37 (5)	05:45			04:39			04:16		
	16:22	20	10:14 (7)	17:34	29	08:49 (6)	18:38	22	06:59 (5)	20:46			21:49			22:22		
25	08:35		09:55 (7)	07:24		08:20 (6)	06:07		06:36 (5)	05:43			04:37			04:16		
	16:24	19	10:14 (7)	17:37	29	08:49 (6)	18:40	23	06:59 (5)	20:48			21:51			22:22		
26	08:33		09:57 (7)	07:22		08:20 (6)	06:05		06:36 (5)	05:40			04:36			04:17		
	16:26	16	10:13 (7)	17:39	28	08:48 (6)	18:42	24	07:00 (5)	20:50			21:53			22:22		
27	08:31		09:59 (7)	07:19		08:21 (6)	06:02		06:36 (5)	05:38			04:34			04:17		
	16:28	13	10:12 (7)	17:41	26	08:47 (6)	18:44	24	07:00 (5)	20:53			21:55			22:22		
28	08:29		10:02 (7)	07:16		08:22 (6)	05:59		06:35 (5)	05:35			04:32			04:18		
	16:31	7	10:09 (7)	17:44	24	08:46 (6)	18:46	24	06:59 (5)	20:55			21:56			22:21		
29	08:27						06:56		07:35 (5)	05:33			04:31			04:18		
	16:33						19:49	23	07:58 (5)	20:57			21:58			22:21		
30	08:25						06:53		07:35 (5)	05:30			04:30			04:19		
	16:35						19:51	22	07:57 (5)	20:59			22:00			22:21		
31	08:23						06:51		07:36 (5)				04:28					
	16:38						19:53	21	07:57 (5)				22:01					
Potential sun hours	227			262			365			429			515			539		
Total, worst case		602			502			292			42							
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		66			98			118			18							

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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.

	July	August	September	October	November	December
1	04:20	05:09	06:15	07:19	07:28	08:02 (8)
	22:20	21:35	20:17	18:53	16:32	14
2	04:21	05:11	06:17	07:21	07:30	08:16 (8)
	22:20	21:33	20:15	18:51	16:30	10
3	04:22	05:13	06:19	07:23	07:32	08:07 (8)
	22:19	21:31	20:12	18:48	16:27	6
4	04:23	05:15	06:21	07:25	07:35	08:13 (8)
	22:18	21:29	20:09	18:45	16:25	08:38
5	04:24	05:17	06:23	07:27	07:37	15:34
	22:18	21:27	20:06	18:42	16:23	23
6	04:25	05:20	06:26	07:29	07:39	08:40
	22:17	21:24	20:04	18:40	16:21	22
7	04:26	05:22	06:28	07:31	07:41	08:43
	22:16	21:22	20:01	18:37	16:18	21
8	04:27	05:24	06:30	07:34	07:44	15:32
	22:15	21:20	19:58	18:34	16:16	08:45
9	04:29	05:26	06:32	07:36	07:46	15:31
	22:14	21:17	19:55	8 07:35 (5)	16:14	20
10	04:30	05:28	06:34	07:38	07:48	08:46
	22:13	21:15	19:52	14 07:46 (5)	8 09:03 (6)	15:31
11	04:31	05:30	06:36	07:40	07:51	20 09:11 (6)
	22:12	21:12	19:50	17 07:47 (5)	16:12	19
12	04:33	05:32	06:38	07:42	07:53	08:49
	22:10	21:10	19:47	20 07:48 (5)	16:10	15:30
13	04:34	05:34	06:40	07:45	07:55	08:50
	22:09	21:07	19:44	21 07:48 (5)	16:08	18
14	04:36	05:37	06:42	07:47	07:57	08:51
	22:08	21:05	19:41	22 07:48 (5)	16:06	17
15	04:38	05:39	06:45	07:49	08:00	08:53
	22:06	21:02	19:38	23 07:48 (5)	16:04	16
16	04:39	05:41	06:47	07:51	08:02	09:01
	22:05	21:00	19:36	24 07:48 (5)	16:02	15
17	04:41	05:43	06:49	07:54	08:04	09:03
	22:03	20:57	19:33	24 07:48 (5)	16:00	14
18	04:43	05:45	06:51	07:56	08:06	09:05
	22:02	20:55	19:30	23 07:47 (5)	15:58	13
19	04:44	05:47	06:53	07:58	08:09	09:07
	22:00	20:52	19:27	22 07:47 (5)	15:56	12
20	04:46	05:49	06:55	08:00	08:11	09:08
	21:59	20:50	19:24	21 07:46 (5)	15:55	11
21	04:48	05:51	06:57	08:02	08:13	09:09
	21:57	20:47	19:22	18 07:45 (5)	15:53	10
22	04:50	05:54	06:59	08:05	08:15	09:10
	21:55	20:44	19:19	14 07:43 (5)	15:51	9
23	04:51	05:56	07:01	08:07	08:17	09:11
	21:53	20:42	19:16	9 07:40 (5)	15:48	8
24	04:53	05:58	07:04	08:09	08:19	09:12
	21:52	20:39	19:13	2 07:35 (5)	15:46	7
25	04:55	06:00	07:06	08:12	08:21	09:13
	21:50	20:36	19:10	16:49	15:45	6
26	04:57	06:02	07:08	08:14	08:23	09:14
	21:48	20:34	19:07	16:47	15:44	5
27	04:59	06:04	07:10	08:16	08:25	09:15
	21:46	20:31	19:05	16:44	15:42	4
28	05:01	06:06	07:12	08:18	08:27	09:16
	21:44	20:28	19:02	16:42	15:41	3
29	05:03	06:09	07:14	08:21	08:29	09:17
	21:42	20:26	18:59	16:39	15:40	2
30	05:05	06:11	07:16	08:23	08:31	09:18
	21:40	20:23	18:56	16:37	15:38	1
31	05:07	06:13		08:25	08:33	
	21:38	20:20		16:34	15:38	
Potential sun hours	538	474	386	321	241	207
Total, worst case			282	534	398	549
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			130	151	31	34

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Liksnas - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (470)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed 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	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_Nordex163 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	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	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 20:24	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:47 18:18	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		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	08:29 15:39	09:01 15:35
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	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	06:12 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 21:22	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 15:30
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 22:02	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	07:16 20:23	07:23 18:56	08:31 16:36	09:01 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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
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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	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Merkela iela 10 (94010010901001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (625) 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	05:27 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
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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
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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_Nordex163 Shadow receptor: Merkela iela 10 (94010010901002) - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (624) 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	05:27 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
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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
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
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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	04:49 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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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
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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
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	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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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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 21:38	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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	04:49 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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 15:30
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
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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 22:21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	08:13 15:51	08:59 15:30
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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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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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Merkela iela 16 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (637) 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
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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
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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

No operational time reduction. It is assumed the 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
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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 17:29	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	05:37 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		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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Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 15:30
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		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 15:38	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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SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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_Nordex163 Shadow receptor: Mež ares - 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
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	15:31
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	08:02	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
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	22:11	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	08:52
	15:59	17:09	18:13	20:22	21:28	22:17	22:09	21:08	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	18:16	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	22:07	21:03	19:39	18:15	16:02	15:29
16	08:49	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	08:07	08:57
	16:09	17:20	18:24	20:33	21:38	22:21	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	06:22	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												
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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
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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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	04:55 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
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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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

No operational time reduction. It is assumed the 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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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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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
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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 21:51	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
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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 20:25	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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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		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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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
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	16:06	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	19:36	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	22:03	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
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		21:38	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	21:26	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	04:52	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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 21:19	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 17:36	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	22:09	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	16:08	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	07:44	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	22:22	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
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		21:38	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_Nordex163 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
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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	04:40 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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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_Nordex163 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
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	06:15	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	04:52	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
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		21:38	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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 15:35
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_Nordex163 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
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	08:14 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 15:30
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
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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
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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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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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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_Nordex163 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
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
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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 19:47	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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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
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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	07:23 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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 22:15	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
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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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	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_Nordex163

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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 21:09	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 22:18	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	08:30 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
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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_Nordex163 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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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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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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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 21:06	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 16:02	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
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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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
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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 20:35	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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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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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) []

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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	04:38 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Malkalni - Shadow Receptor: 1.0 × 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
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

No operational time reduction. It is assumed 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	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 20:24	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:47 18:18	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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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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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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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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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 15:35
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	06:11 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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	08:47 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
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
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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
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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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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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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
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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	09:01 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

No operational time reduction. It is assumed 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 22 15:41 09:00 15:42 22 15:43 09:00 15:43 23 15:45 09:00 15:45 23 15:46 09:00 15:46 23 15:47 09:00 15:47 23 15:48 09:00 15:48 23 15:49 09:00 15:49 23 15:50 09:00 15:50 23 15:51 09:00 15:51 23 15:52 09:00 15:52 23 15:53 09:00 15:53 23 15:54 09:00 15:54 23 15:55 09:00 15:55 23 15:56 09:00 15:56 23 15:57 09:00 15:57 23 15:58 09:00 15:58 23 15:59 09:00 15:59 23 16:00 09:00 16:00 23 16:01 09:00 16:01 23 16:02 09:00 16:02 23 16:03 09:00 16:03 23 16:04 09:00 16:04 23 16:05 09:00 16:05 23 16:06 09:00 16:06 23 16:07 09:00 16:07 23 16:08 09:00 16:08 23 16:09 09:00 16:09 23 16:10 09:00 16:10 23 16:11 09:00 16:11 23 16:12 09:00 16:12 23 16:13 09:00 16:13 23 16:14 09:00 16:14 23 16:15 09:00 16:15 23 16:16 09:00 16:16 23 16:17 09:00 16:17 23 16:18 09:00 16:18 23 16:19 09:00 16:19 23 16:20 09:00 16:20 23 16:21 09:00 16:21 23 16:22 09:00 16:22 23 16:23 09:00 16:23 23 16:24 09:00 16:24 23 16:25 09:00 16:25 23 16:26 09:00 16:26 23 16:27 09:00 16:27 23 16:28 09:00 16:28 23 16:29 09:00 16:29 23 16:30 09:00 16:30 23 16:31 09:00 16:31 23 16:32 09:00 16:32 23 16:33 09:00 16:33 23 16:34 09:00 16:34 23 16:35 09:00 16:35 23 16:36 09:00 16:36 23 16:37 09:00 16:37 23 16:38 09:00 16:38 23 16:39 09:00 16:39 23 16:40 09:00 16:40 23 16:41 09:00 16:41 23 16:42 09:00 16:42 23 16:43 09:00 16:43 23 16:44 09:00 16:44 23 16:45 09:00 16:45 23 16:46 09:00 16:46 23 16:47 09:00 16:47 23 16:48 09:00 16:48 23 16:49 09:00 16:49 23 16:50 09:00 16:50 23 16:51 09:00 16:51 23 16:52 09:00 16:52 23 16:53 09:00 16:53 23 16:54 09:00 16:54 23 16:55 09:00 16:55 23 16:56 09:00 16:56 23 16:57 09:00 16:57 23 16:58 09:00 16:58 23 16:59 09:00 16:59 23 17:00 09:00 17:00 23 17:01 09:00 17:01 23 17:02 09:00 17:02 23 17:03 09:00 17:03 23 17:04 09:00 17:04 23 17:05 09:00 17:05 23 17:06 09:00 17:06 23 17:07 09:00 17:07 23 17:08 09:00 17:08 23 17:09 09:00 17:09 23 17:10 09:00 17:10 23 17:11 09:00 17:11 23 17:12 09:00 17:12 23 17:13 09:00 17:13 23 17:14 09:00 17:14 23 17:15 09:00 17:15 23 17:16 09:00 17:16 23 17:17 09:00 17:17 23 17:18 09:00 17:18 23 17:19 09:00 17:19 23 17:20 09:00 17:20 23 17:21 09:00 17:21 23 17:22 09:00 17:22 23 17:23 09:00 17:23 23 17:24 09:00 17:24 23 17:25 09:00 17:25 23 17:26 09:00 17:26 23 17:27 09:00 17:27 23 17:28 09:00 17:28 23 17:29 09:00 17:29 23 17:30 09:00 17:30 23 17:31 09:00 17:31 23 17:32 09:00 17:32 23 17:33 09:00 17:33 23 17:34 09:00 17:34 23 17:35 09:00 17:35 23 17:36 09:00 17:36 23 17:37 09:00 17:37 23 17:38 09:00 17:38 23 17:39 09:00 17:39 23 17:40 09:00 17:40 23 17:41 09:00 17:41 23 17:42 09:00 17:42 23 17:43 09:00 17:43 23 17:44 09:00 17:44 23 17:45 09:00 17:45 23 17:46 09:00 17:46 23 17:47 09:00 17:47 23 17:48 09:00 17:48 23 17:49 09:00 17:49 23 17:50 09:00 17:50 23 17:51 09:00 17:51 23 17:52 09:00 17:52 23 17:53 09:00 17:53 23 17:54 09:00 17:54 23 17:55 09:00 17:55 23 17:56 09:00 17:56 23 17:57 09:00 17:57 23 17:58 09:00 17:58 23 17:59 09:00 17:59 23 18:00 09:00 18:00 23 18:01 09:00 18:01 23 18:02 09:00 18:02 23 18:03 09:00 18:03 23 18:04 09:00 18:04 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23 19:40 09:00 19:40 23 19:41 09:00 19:41 23 19:42 09:00 19:42 23 19:43 09:00 19:43 23 19:44 09:00 19:44 23 19:45 09:00 19:45 23 19:46 09:00 19:46 23 19:47 09:00 19:47 23 19:48 09:00 19:48 23 19:49 09:00 19:49 23 19:50 09:00 19:50 23 19:51 09:00 19:51 23 19:52 09:00 19:52 23 19:53 09:00 19:53 23 19:54 09:00 19:54 23 19:55 09:00 19:55 23 19:56 09:00 19:56 23 19:57 09:00 19:57 23 19:58 09:00 19:58 23 19:59 09:00 19:59 23 20:00 09:00 20:00 23 20:01 09:00 20:01 23 20:02 09:00 20:02 23 20:03 09:00 20:03 23 20:04 09:00 20:04 23 20:05 09:00 20:05 23 20:06 09:00 20:06 23 20:07 09:00 20:07 23 20:08 09:00 20:08 23 20:09 09:00 20:09 23 20:10 09:00 20:10 23 20:11 09:00 20:11 23 20:12 09:00 20:12 23 20:13 09:00 20:13 23 20:14 09:00 20:14 23 20:15 09:00 20:15 23 20:16 09:00 20:16 23 20:17 09:00 20:17 23 20:18 09:00 20:18 23 20:19 09:00 20:19 23 20:20 09:00 20:20 23 20:21 09:00 20:21 23 20:22 09:00 20:22 23 20:23 09:00 20:23 23 20:24 09:00 20:24 23 20:25 09:00 20:25 23 20:26 09:00 20:26 23 20:27 09:00 20:27 23 20:28 09:00 20:28 23 20:29 09:00 20:29 23 20:30 09:00 20:30 23 20:31 09:00 20:31 23 20:32 09:00 20:32 23 20:33 09:00 20:33 23 20:34 09:00 20:34 23 20:35 09:00 20:35 23 20:36 09:00 20:36 23 20:37 09:00 20:37 23 20:38 09:00 20:38 23 20:39 09:00 20:39 23 20:40 09:00 20:40 23 20:41 09:00 20:41 23 20:42 09:00 20:42 23 20:43 09:00 20:43 23 20:44 09:00 20:44 23 20:45 09:00 20:45 23 20:46 09:00 20:46 23 20:47 09:00 20:47 23 20:48 09:00 20:48 23 20:49 09:00 20:49 23 20:50 09:00 20:50 23 20:51 09:00 20:51 23 20:52 09:00 20:52 23 20:53 09:00 20:53 23 20:54 09:00 20:54 23 20:55 09:00 20:55 23 20:56 09:00 20:56 23 20:57 09:00 20:57 23 20:58 09:00 20:58 23 20:59 09:00 20:59 23 21:00 09:00 21:00 23 21:01 09:00 21:01 23 21:02 09:00 21:02 23 21:03 09:00 21:03 23 21:04 09:00 21:04 23 21:05 09:00 21:05 23 21:06 09:00 21:06 23 21:07 09:00 21:07 23 21:08 09:00 21:08 23 21:09 09:00 21:09 23 21:10 09:00 21:10 23 21:11 09:00 21:11 23 21:12 09:00 21:12 23 21:13 09:00 21:13 23 21:14 09:00 21:14 23 21:15 09:00 21:15 23 21:16 09:00 21:16 23 21:17 09:00 21:17 23 21:18 09:00 21:18 23 21:19 09:00 21:19 23 21:20 09:00 21:20 23 21:21 09:00 21:21 23 21:22 09:00 21:22 23 21:23 09:00 21:23 23 21:24 09:00 21:24 23 21:25 09:00 21:25 23 21:26 09:00 21:26 23 21:27 09:00 21:27 23 21:28 09:00 21:28 23 21:29 09:00 21:29 23 21:30 09:00 21:30 23 21:31 09:00 21:31 23 21:32 09:00 21:32 23 21:33 09:00 21:33 23 21:34 09:00 21:34 23 21:35 09:00 21:35 23 21:36 09:00 21:36 23 21:37 09:00 21:37 23 21:38 09:00 21:38 23 21:39 09:00 21:39 23 21:40 09:00 21:40 23 21:41 09:00 21:41 23 21:42 09:00 21:42 23 21:43 09:00 21:43 23 21:44 09:00 21:44 23 21:45 09:00 21:45 23 21:46 09:00 21:46 23 21:47 09:00 21:47 23 21:48 09:00 21:48 23 21:49 09:00 21:49 23 21:50 09:00 21:50 23 21:51 09:00 21:51 23 21:52 09:00 21:52 23 21:53 09:00 21:53 23 21:54 09:00 21:54 23 21:55 09:00 21:55 23 21:56 09:00 21:56 23 21:57 09:00 21:57 23 21:58 09:00 21:58 23 21:59 09:00 21:59 23 22:00 09:00 22:00 23 22:01 09:00 22:01 23 22:02 09:00 22:02 23 22:03 09:00 22:03 23 22:04 09:00 22:04 23 22:05 09:00 22:05 23 22:06 09:00 22:06 23 22:07 09:00 22:07 23 22:08 09:00 22:08 23 22:09 09:00 22:09 23 22:10 09:00 22:10 23 22:11 09:00 22:11 23 22:12 09:00 22:12 23 22:13 09:00 22:13 23 22:14 09:00 22:14 23 22:15 09:00 22:15 23 22:16 09:00 22:16 23 22:17 09:00 22:17 23 22:18 09:00 22:18 23 22:19 09:00 22:19 23 22:20 09:00 22:20 23 22:21 09:00 22:21 23 22:22 09:00 22:22 23 22:23 09:00 22:23 23 22:24 09:00 22:24 23 22:25 09:00 22:25 23 22:26 09:00 22:26 23 22:27 09:00 22:27 23 22:28 09:00 22:28 23 22:29 09:00 22:29 23 22:30 09:00 22:30 23 22:31 09:00 22:31 23 22:32 09:00 22:32 23 22:33 09:00 22:33 23 22:34 09:00 22:34 23 22:35 09:00 22:35 23 22:36 09:00 22:36 23 22:37 09:00 22:37 23 22:38 09:00 22:38 23 22:39 09:00 22:39 23 22:40 09:00 22:40 23 22:41 09:00 22:41 23 22:42 09:00 22:42 23 22:43 09:00 22:43 23 22:44 09:00 22:44 23 22:45 09:00 22:45 23 22:46 09:00 22:46 23 22:47 09:00 22:47 23 22:48 09:00 22:48 23 22:49 09:00 22:49 23 22:50 09:00 22:50 23 22:51 09:00 22:51 23 22:52 09:00 22:52 23 22:53 09:00 22:53 23 22:54 09:00 22:54 23 22:55 09:00 22:55 23 22:56 09:00 22:56 23 22:57 09:00 22:57 23 22:58 09:00 22:58 23 22:59 09:00 22:59 23 23:00 09:00 23:00 23 23:01 09:00 23:01 23 23:02 09:00 23:02 23 23:03 09:00 23:03 23 23:04 09:00 23:04 23 23:05 09:00 23:05 23 23:06 09:00 23:06 23 23:07 09:00 23:07 23 23:08 09:00 23:08 23 23:09 09:00 23:09 23 23:10 09:00 23:10 23 23:11 09:00 23:11 23 23:12 09:00 23:12 23 23:13 09:00 23:13 23 23:14 09:00 23:14 23 23:15 09:00 23:15 23 23:16 09:00 23:16 23 23:17 09:00 23:17 23 23:18 09:00 23:18 23 23:19 09:00 23:19 23 23:20											

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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15:40	16:40	15	09:09 (6)	17:46	19:55	21:01	22:03	22:20	21:35	20:17	18:54	16:32
2	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
15:41	16:42	18	09:09 (6)	17:48	19:57	21:04	22:04	22:20	21:33	20:15	18:51	16:30
3	09:00	08:17	08:50 (6)	07:08	06:42	05:23	04:25	04:22	05:13	06:19	07:23	08:37
15:42	16:45	20	09:10 (6)	17:51	20:00	21:06	22:06	22:19	21:31	20:12	18:48	16:27
4	08:59	08:15	08:49 (6)	07:06	06:40	05:21	04:23	04:23	05:15	06:21	07:25	08:38
15:44	16:47	21	09:10 (6)	17:53	20:02	21:08	22:07	22:18	21:29	20:09	18:45	16:25
5	08:59	08:13	08:49 (6)	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27	08:40
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6	08:58	08:11	08:50 (6)	07:00	06:34	05:16	04:21	04:25	05:20	06:26	07:29	08:42
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7	08:58	08:08	08:49 (6)	06:57	06:31	05:13	04:20	04:26	05:22	06:28	07:32	08:43
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8	08:57	08:06	08:50 (6)	06:55	06:28	05:11	04:20	04:27	05:24	06:30	07:34	08:45
15:50	16:57	22	09:12 (6)	18:02	20:11	21:17	22:12	22:15	21:20	19:58	18:34	16:16
9	08:56	08:04	08:50 (6)	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36	08:46
15:51	16:59	21	09:11 (6)	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14
10	08:55	08:01	08:51 (6)	06:49	06:23	05:07	04:18	04:30	05:28	06:34	07:38	08:48
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11	08:54	07:59	08:52 (6)	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	08:49
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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
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19	08:44	07:40		06:24	05:59	04:48	04:15	04:44	05:47	06:53	07:58	08:57
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16:15	17:27			18:31	20:39	21:44	22:22	21:57	20:47	19:22	17:59	15:51
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24	08:36	07:27		06:10	05:45	04:39	04:16	04:53	05:58	07:04	08:09	08:59
16:22	17:34			18:38	20:46	21:49	22:22	21:52	20:39	19:13	17:52	15:46
25	08:35	07:24		06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:12	08:21
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16:31	17:44			18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41
29	08:27	09:00 (6)		06:56	05:33	04:31	04:18	05:03	06:09	07:14	07:21	08:29
16:33	3	09:03 (6)		19:49	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:40
30	08:25	08:58 (6)		06:53	05:30	04:30	04:19	05:05	06:11	07:16	07:23	08:31
16:35	7	09:05 (6)		19:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38
31	08:23	08:56 (6)		06:51		04:28		05:07	06:13		07:25	08:21
16:38	11	09:07 (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		257								58	220	
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	50								16	17	

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	05:09 22:20	06:15 21:35	07:18 18:53		07:27 16:32
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	05:11 21:33	06:17 20:14	07:20 18:50	24	15:31 (2) 15:55 (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	05:13 21:31	06:19 20:12	07:23 18:48	22	15:32 (2) 15:54 (2)
4	08:59 15:43	08:15 16:47	16:07 (2)	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	19	15:33 (2) 15:51 (2)
5	08:59 15:45	08:12 16:49	16:06 (2)	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	16	15:34 (2) 15:49 (2)
6	08:58 15:46	08:10 16:52	16:04 (2)	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	12	15:36 (2) 15:44 (2)
7	08:57 15:48	08:08 16:54	16:16 (2)	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	8	15:38 (2) 15:42 (2)
8	08:57 15:49	08:06 16:56	16:19 (2)	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	4	15:40 (2) 15:44 (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	05:26 21:17	06:32 19:55	07:36 18:31		15:46 (2) 15:50 (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	05:28 21:14	06:34 19:52	07:38 18:28		15:48 (2) 15:52 (2)
11	08:54 15:55	07:59 17:03	16:02 (2)	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		15:50 (2) 15:54 (2)
12	08:53 15:57	07:56 17:06	16:01 (2)	06:43 18:11	06:17 20:19	05:02 21:25	04:17 22:10	05:32 21:10	06:38 19:47	07:42 18:23		15:52 (2) 15:56 (2)
13	08:52 15:58	07:54 17:08	16:02 (2)	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		15:54 (2) 15:58 (2)
14	08:51 16:00	07:52 17:11	16:02 (2)	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		15:56 (2) 16:00 (2)
15	08:49 16:02	07:49 17:13	16:02 (2)	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		15:58 (2) 16:02 (2)
16	08:48 16:04	07:47 17:15	16:03 (2)	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		16:04 (2) 16:08 (2)
17	08:47 16:06	07:44 17:18	16:03 (2)	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	05:43 20:57	06:48 19:33	07:53 18:10		16:10 (2) 16:14 (2)
18	08:45 16:08	07:42 17:20	16:05 (2)	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	05:45 20:55	06:51 19:30	07:55 18:07		16:16 (2) 16:20 (2)
19	08:44 16:10	07:39 17:22	16:06 (2)	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21	05:47 20:52	06:53 19:27	07:58 18:04		16:22 (2) 16:26 (2)
20	08:42 16:13	07:37 17:25	16:09 (2)	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		16:32 (2) 16:36 (2)
21	08:41 16:15	07:34 17:27	16:18 (2)	06:18 18:31	05:53 20:39	04:44 21:43	04:15 22:21	05:51 20:47	06:57 19:21	08:02 17:59	16:44 (2)	15:51 (2)
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 20:44	06:59 19:18	08:04 17:56	16:45 (2)	15:53 (2)
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 20:41	07:01 19:16	08:07 17:54	16:46 (2)	15:55 (2)
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 19:13	08:09 17:51	16:47 (2)	15:57 (2)
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 19:10	07:11 16:49	16:48 (2)	15:59 (2)
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	16:49 (2)	16:00 (2)
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 20:31	07:10 19:04	07:16 16:44	16:50 (2)	16:02 (2)
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 20:28	07:12 19:02	07:18 16:41	16:51 (2)	16:04 (2)
29	08:27 16:33			06:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	06:08 20:25	07:14 18:59	07:20 16:39	16:52 (2)	16:06 (2)
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	16:53 (2)	16:08 (2)
31	08:23 16:37			06:50 19:53		04:28 22:01		06:13 21:37	07:25 20:20	07:25 16:34	16:54 (2)	16:10 (2)
Potential sun hours	227	262		365	429	515	539	538	474	386	321	241
Total, worst case												211
Sun reduction												0.28
Oper. time red.												1.00
Wind dir. red.												1.00
Total reduction												0.28
Total, real		61										8

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

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

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Pastisli - 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 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	05:25 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 16:28	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	04:24 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
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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 21:30	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
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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 22:03	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 17:27	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	04:42 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 17:34	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 15:32
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 16:29	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Pilenieš i - 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
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

No operational time reduction. It is assumed 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	10:06 (1)	08:21	10:03 (1)	07:13	06:48	05:28	04:27	04:20	05:09	06:15	07:18
2	09:00	10:06 (1)	08:19	10:04 (1)	07:11	06:45	05:25	04:26	04:21	05:11	06:17	07:21
3	09:00	10:05 (1)	08:17	10:05 (1)	07:08	06:42	05:23	04:24	04:22	05:13	06:19	07:23
4	08:59	10:05 (1)	08:15	10:05 (1)	07:05	06:39	05:20	04:23	04:23	05:15	06:21	07:25
5	08:59	10:04 (1)	08:13	10:04 (1)	07:03	06:37	05:18	04:22	04:24	05:17	06:23	07:27
6	08:58	10:04 (1)	08:10	10:08 (1)	07:00	06:34	05:16	04:21	04:25	05:19	06:25	07:29
7	08:58	10:03 (1)	08:08	10:08 (1)	06:57	06:31	05:12	04:20	04:26	05:22	06:28	07:31
8	08:57	10:03 (1)	08:06	10:10 (1)	06:55	06:28	05:11	04:19	04:27	05:24	06:30	07:34
9	08:56	10:03 (1)	08:04	10:11 (1)	06:52	06:26	05:09	04:19	04:29	05:26	06:32	07:36
10	08:55	10:03 (1)	08:01	10:13 (1)	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38
11	08:54	10:03 (1)	07:59	10:14 (1)	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40
12	08:53	10:02 (1)	07:57	10:17 (1)	06:44	06:17	05:02	04:17	04:33	05:32	06:38	07:42
13	08:52	10:03 (1)	07:54	10:23 (1)	06:41	06:15	05:00	04:16	04:34	05:34	06:40	07:45
14	08:51	10:02 (1)	07:52	10:28 (1)	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47
15	08:50	10:02 (1)	07:49	18:15	20:24	21:29	22:18	22:08	21:05	19:41	18:18	16:04
16	08:48	10:02 (1)	07:47	18:18	20:26	21:31	22:19	22:06	21:02	19:38	18:15	16:02
17	08:47	10:01 (1)	07:44	18:20	20:28	21:34	22:19	22:05	21:00	19:36	18:12	16:00
18	08:46	10:02 (1)	07:42	18:22	20:30	21:36	22:20	22:03	20:57	19:33	18:10	15:58
19	08:45	10:02 (1)	07:39	18:24	20:33	21:38	22:20	22:02	20:55	19:30	18:07	15:56
20	08:43	10:02 (1)	07:37	18:26	20:35	21:40	22:21	22:00	20:52	19:27	18:04	15:54
21	08:41	10:02 (1)	07:34	18:29	20:37	21:42	22:21	21:59	20:50	19:24	18:02	15:53
22	08:40	10:01 (1)	07:32	18:31	20:39	21:43	22:21	21:57	20:47	19:21	17:59	15:51
23	08:38	10:02 (1)	07:29	18:33	20:41	21:45	22:22	21:55	20:44	19:19	17:57	15:49
24	08:36	10:02 (1)	07:27	18:35	20:44	21:47	22:22	21:53	20:42	19:16	17:54	15:48
25	08:34	10:02 (1)	07:24	18:37	20:46	21:49	22:22	21:51	20:39	19:13	17:52	15:46
26	08:33	10:02 (1)	07:21	18:40	20:48	21:51	22:22	21:50	20:36	19:10	16:49	15:45
27	08:31	10:02 (1)	07:19	18:42	20:50	21:53	22:22	21:48	20:34	19:07	16:47	15:43
28	08:29	10:03 (1)	07:16	18:44	20:53	21:55	22:22	21:46	20:31	19:05	16:44	15:42
29	08:27	10:02 (1)	07:14	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41
30	08:25	10:03 (1)	07:11	18:48	20:57	21:58	22:21	21:42	20:26	18:59	16:39	15:39
31	08:23	10:04 (1)	07:08	18:51	20:59	22:00	22:21	21:40	20:23	18:56	16:37	15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case	2371	400										3271
Sun reduction	0.11	0.19										0.06
Oper. time red.	1.00	1.00										1.00
Wind dir. red.	1.00	1.00										1.00
Total reduction	0.11	0.19										0.06
Total, real	259	78										201

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Plumes - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (490)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed 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 20:24	04:58 21:29	04:16 22:18	04:36 22:07	05:36 21:05	06:42 19:41	07:47 18:18	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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 18:07	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	06:46 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	06:18 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	04:16 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 16:29	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	06:06 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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	04:23 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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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 15:56	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
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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	05:41 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
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	08:35 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
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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 15:36
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 21:38	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163 Shadow receptor: Poruka iela 19 (94010010924001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (609) 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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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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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 15:37
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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	05:41 21:00	06:46 19:35	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	04:49 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
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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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Poruka iela 21A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (630)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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 16:44	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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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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Poruka iela 23A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (636)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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
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	05:38 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		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		

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 22:11	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 21:20	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	06:48 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Pumpura iela 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 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 16:05	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	04:52 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 17:51	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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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	06:46 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
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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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 17:51	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		07:27 16:32	15:39 (2) 15:56 (2)	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	15:40 (2) 15:54 (2)	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	07:23 18:48		07:32 16:27	15:41 (2) 15:51 (2)	08:36 15:35
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		07:34 16:25	15:43 (2) 15:49 (2)	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	04:24 22:17	05:17 21:26	06:23 20:06	07:27 18:42		07:37 16:22	15:44 (2) 15:46 (2)	08:40 15:33
6	08:58 15:46	08:10 16:52	2	16:14 (2) 16:16 (2)	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	08:08 16:54	6	16:13 (2) 16:19 (2)	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	08:06 16:56	11	16:11 (2) 16:22 (2)	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	08:03 16:59	14	16:11 (2) 16:25 (2)	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	08:01 17:01	17	16:10 (2) 16:27 (2)	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	07:59 17:03	20	16:10 (2) 16:30 (2)	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 15:56	07:56 17:06	22	16:09 (2) 16:31 (2)	06:43 18:11	06:17 20:19	05:02 21:25	04:17 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	23	16:09 (2) 16:32 (2)	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	07:52 17:11	23	16:09 (2) 16:32 (2)	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	07:49 17:13	22	16:09 (2) 16:31 (2)	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	07:47 17:15	21	16:10 (2) 16:31 (2)	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 16:00		08:54 15:29
17	08:47 16:06	07:44 17:18	20	16:10 (2) 16:30 (2)	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	05:43 20:57	06:48 19:33	07:53 18:10		08:04 15:58		08:55 15:29
18	08:45 16:08	07:42 17:20	19	16:11 (2) 16:30 (2)	06:27 18:24	06:01 20:32	04:49 21:37	04:15 22:20	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	17	16:12 (2) 16:29 (2)	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21	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	14	16:13 (2) 16:27 (2)	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	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	7	16:16 (2) 16:23 (2)	06:18 18:31	05:53 20:39	04:44 21:43	04:15 22:21	05:51 20:47	06:57 19:21	08:02 17:59	16:46 (2) 10	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 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	16:43 (2) 14	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 22:22	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	16:42 (2) 17	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 22:22	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	16:40 (2) 20	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	15:40 (2) 21	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 21:53	04:16 22:21	04:57 21:47	06:02 20:33	07:08 19:07	07:14 16:46	15:39 (2) 22	08:23 15:43		09:00 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 21:45	06:04 20:31	07:10 19:04	07:16 16:44	15:39 (2) 22	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 21:43	06:06 20:28	07:12 19:02	07:18 16:41	15:38 (2) 23	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	15:39 (2) 22	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	15:38 (2) 23	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	07:25 15:59 (2)	15:39 (2) 20			09:00 15:38
Potential sun hours	227	262		365	429	515	539	538	474	386	321	241			207
Total, worst case			258									214			
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									61		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)

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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	04:23 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 18:09	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 15:56	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	07:45 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	04:49 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	08:35 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 15:36
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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	16:05	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
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	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	22:03	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
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
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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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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	04:21 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
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
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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	06:47 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	22:04	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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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 21:29	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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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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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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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 16:10	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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 16:10	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 15:35
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 15:35
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	06:11 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	04:21	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	04:22	05:13	06:19	07:23	07:32	08:37
	15:42	16:45	17:50	20:00	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	07:35	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	08:11	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	18:40	16:20	15:33
7	08:58	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:28	07:31	07:41	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	04:19	04:27	05:24	06:30	07:34	07:44	08:45
	15:50	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	06:26	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	18:29	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	22:11	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	07:58	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	18:18	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	04:41	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	22:21	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
	16:11	17:23	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	06:19	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	22:22	21:57	20:47	19:21	17:59	15:51	15:30
22	08:40	07:32	06:16	05:51	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	17:52	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	09:01
	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	06:05	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	16:47	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
	16:31	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	06:08	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	15:39	15:36
30	08:25		06:53	05:30	04:29	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	15:38	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		16:34		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 15:35
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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
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 15:35
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	06:11 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	04:21	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	04:22	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	06:28	07:31	07:41	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	04:19	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
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	18:29	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	21:30	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	18:18	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	04:41	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
	16:11	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	04:47	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	17:52	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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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 18:18	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 15:35
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	06:11 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	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	07:23 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 20:01	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	07:03 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	
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	08:57 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	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 15:57	07:56 17:06	16:31 (2) 18:11	06:43 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	16:29 (2) 18:13	06:41 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	16:27 (2) 18:15	06:38 20:24	06:12 21:29	04:58 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	08:49 16:02	07:49 17:13	16:26 (2) 18:17	06:35 20:26	06:09 21:31	04:56 22:18	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	17:01 (2) 17:13 (2)	07:59 16:02	08:53 15:29
16	08:48 16:04	07:47 17:15	16:26 (2) 18:20	06:32 20:28	06:06 21:33	04:53 22:19	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	17:00 (2) 17:15 (2)	08:02 16:00	08:54 15:29
17	08:47 16:06	07:44 17:18	16:25 (2) 18:22	06:29 20:30	06:04 21:35	04:51 22:20	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	16:58 (2) 17:16 (2)	08:04 15:58	08:55 15:29
18	08:45 16:08	07:42 17:20	16:24 (2) 18:24	06:27 20:32	06:01 21:37	04:49 22:20	04:15 22:02	05:45 20:54	06:51 19:30	07:55 18:07	16:57 (2) 17:17 (2)	08:06 15:56	08:56 15:29
19	08:44 16:10	07:39 17:22	16:24 (2) 18:26	06:24 20:35	05:58 21:39	04:48 22:21	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	16:56 (2) 17:18 (2)	08:08 15:54	08:57 15:29
20	08:42 16:13	07:37 17:25	16:24 (2) 18:28	06:21 20:37	05:56 21:41	04:46 22:21	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	16:55 (2) 17:17 (2)	08:10 15:52	08:58 15:29
21	08:41 16:15	07:34 17:27	16:24 (2) 18:31	06:18 20:39	05:53 21:43	04:44 22:21	04:45 21:57	05:51 20:47	06:57 19:21	08:02 17:59	16:55 (2) 17:18 (2)	08:13 15:51	08:58 15:30
22	08:39 16:17	07:32 17:29	16:25 (2) 18:33	06:16 20:41	05:50 21:45	04:42 22:21	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	16:54 (2) 17:18 (2)	08:15 15:49	08:59 15:30
23	08:38 16:19	07:29 17:32	16:25 (2) 18:35	06:13 20:43	05:48 21:47	04:40 22:22	04:15 21:53	05:55 20:41	07:01 19:16	08:07 17:54	16:55 (2) 17:18 (2)	08:17 15:48	08:59 15:31
24	08:36 16:21	07:26 17:34	16:25 (2) 18:37	06:10 20:46	05:45 21:49	04:39 22:22	04:15 21:51	05:58 20:39	07:03 19:13	08:09 17:51	16:54 (2) 17:17 (2)	08:19 15:46	09:00 15:31
25	08:34 16:24	07:24 17:36	16:27 (2) 18:39	06:07 20:48	05:43 21:51	04:37 22:22	04:16 21:49	06:00 20:36	07:05 19:10	07:11 16:49	15:55 (2) 16:15 (2)	08:21 15:45	09:00 15:32
26	08:32 16:26	07:21 17:39	16:28 (2) 18:42	06:04 20:50	05:40 21:53	04:35 22:21	04:16 21:47	06:02 20:33	07:08 19:07	07:14 16:46	15:55 (2) 16:12 (2)	08:23 15:43	09:00 15:33
27	08:31 16:28	07:19 17:41	16:31 (2) 18:44	06:02 20:52	05:37 21:54	04:34 22:21	04:17 21:45	06:04 20:31	07:10 19:04	07:16 16:44	15:57 (2) 16:10 (2)	08:25 15:42	09:01 15:34
28	08:29 16:30	07:16 17:43	16:39 (2) 18:59	05:59 20:55	05:35 21:56	04:32 22:21	04:17 21:43	06:06 20:28	07:12 19:02	07:18 16:41	15:57 (2) 16:06 (2)	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	15:59 (2) 16:04 (2)	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	15:57 (2) 16:37	08:31 15:38	09:01 15:37
31	08:23 16:37			06:50 19:53	04:28 22:01	04:28 22:01	05:07 21:37	06:13 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		264									266		
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		51									75		

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
0.80 1.82 4.75 6.09 9.67 10.05 8.16 7.72 5.94 2.93 0.63 0.41

No operational time reduction. It is assumed 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 22:14	04:28 22:17	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 15:57	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	
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	04:50 21:37	04:15 22:20	04:42 22:02	05:45 20:55	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		323							289		41	
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		63							82		3	

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		05:56 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		05:54 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		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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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.

	January	February	March	April	May	June
1	09:00 15:39	08:21 16:40	07:13 17:46	17:05 (12) 17:16 (12)	06:48 19:55	18:41 (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	25 23
3	08:59 15:42	08:17 16:44	07:08 17:50	17:03 (12) 17:20 (12)	06:42 19:59	18:43 (4) 21:05
4	08:59 15:43	08:14 16:47	07:05 17:53	17:02 (12) 17:23 (12)	06:39 20:01	18:44 (4) 19:02 (4)
5	08:58 15:45	08:12 16:49	16:09 (11) 17:55	17:02 (12) 17:23 (12)	06:36 20:04	18:45 (4) 18:59 (4)
6	08:58 15:46	08:10 16:52	16:06 (11) 17:57	17:02 (12) 17:23 (12)	06:34 20:06	18:50 (4) 18:56 (4)
7	08:57 15:48	08:08 16:54	16:06 (11) 17:59	17:02 (12) 17:22 (12)	06:31 20:08	05:13 21:14
8	08:56 15:50	08:06 16:56	16:04 (11) 18:02	17:03 (12) 17:21 (12)	06:28 20:10	05:11 21:16
9	08:56 15:51	08:03 16:59	16:04 (11) 18:04	17:04 (12) 17:19 (12)	06:25 20:12	05:09 21:19
10	08:55 15:53	08:01 17:01	16:03 (11) 18:06	17:05 (12) 17:17 (12)	06:23 20:15	05:06 21:21
11	08:54 15:55	07:59 17:03	16:03 (11) 18:08	17:09 (12) 17:14 (12)	06:20 20:17	05:04 21:23
12	08:53 15:57	07:56 17:06	16:03 (11) 18:11	06:17 20:19	05:02 21:25	04:17 22:16
13	08:52 15:58	07:54 17:08	16:03 (11) 18:13	06:14 20:21	05:00 21:27	04:16 22:17
14	08:50 16:00	07:52 17:11	16:03 (11) 18:15	06:12 20:23	04:58 21:29	04:16 22:18
15	08:49 16:02	07:49 17:13	16:03 (11) 18:17	06:09 20:26	04:56 21:31	04:15 22:18
16	08:48 16:04	07:47 17:15	16:03 (11) 18:20	06:06 20:28	04:54 21:33	04:15 22:19
17	08:47 16:06	07:44 17:18	16:04 (11) 18:22	06:04 20:30	04:52 21:35	04:15 22:19
18	08:45 16:08	07:42 17:20	16:04 (11) 18:24	06:01 20:32	04:50 21:37	04:15 22:20
19	08:44 16:11	07:39 17:22	16:06 (11) 18:26	05:58 20:35	04:48 21:39	04:15 22:20
20	08:42 16:13	07:37 17:25	16:07 (11) 18:28	17:55 (4) 17:59 (4)	05:56 20:37	04:46 21:41
21	08:41 16:15	07:34 17:27	16:09 (11) 18:31	17:50 (4) 18:01 (4)	05:53 20:39	04:44 21:43
22	08:39 16:17	07:32 17:29	16:13 (11) 18:33	17:47 (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	17:46 (4) 18:06 (4)	05:48 20:43	20:06 (2) 20:11 (2)
24	08:36 16:21	07:26 17:34	06:10 18:37	17:45 (4) 18:08 (4)	05:45 20:46	20:04 (2) 20:13 (2)
25	08:34 16:24	07:24 17:36	06:07 18:39	17:44 (4) 18:09 (4)	05:43 20:48	20:03 (2) 20:16 (2)
26	08:32 16:26	07:21 17:39	06:04 18:42	17:42 (4) 18:09 (4)	05:40 20:50	20:02 (2) 20:17 (2)
27	08:31 16:28	07:19 17:41	17:07 (12) 17:11 (12)	06:01 18:08 (4)	05:37 20:52	20:02 (2) 20:20 (2)
28	08:29 16:30	07:16 17:43	17:05 (12) 17:13 (12)	05:59 18:46	05:35 20:54	20:00 (2) 20:21 (2)
29	08:27 16:33		06:56 19:48	18:41 (4) 19:09 (4)	05:32 20:57	20:00 (2) 20:23 (2)
30	08:25 16:35		06:53 19:50	18:41 (4) 19:08 (4)	05:30 20:59	20:01 (2) 20:23 (2)
31	08:23 16:37		06:50 19:53	18:41 (4) 19:07 (4)	04:28 22:01	
Potential sun hours	227	262	365	429	515	539
Total, worst case		353	436	233	148	
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		69	176	99	86	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	05:09	06:15	07:18	07:27	15:33 (11)
	22:20	21:35	20:17	18:53	16:32	23 15:56 (11)
2	04:21	05:11	06:17	07:20	07:30	15:34 (11)
	22:19	21:33	20:14	18:50	16:29	20 15:54 (11)
3	04:22	05:13	06:19	07:22	07:32	15:34 (11)
	22:19	21:31	20:12	18:48	10 17:54 (12)	17 15:51 (11)
4	04:23	05:15	20:17 (2)	06:21	07:25	17:41 (12)
	22:18	21:28	20:09	18:45	15 17:56 (12)	16:25 15:35 (11)
5	04:24	05:17	20:15 (2)	06:23	07:27	17:41 (12)
	22:17	21:26	20:06	18:42	17 17:58 (12)	16:23 15:36 (11)
6	04:25	05:19	20:13 (2)	06:25	18:46 (4)	07:29 17:39 (12)
	22:16	21:24	20:03	5 18:51 (4)	19 17:58 (12)	16:20 15:44 (11)
7	04:26	05:21	20:12 (2)	06:27	18:42 (4)	07:31 17:38 (12)
	22:15	21:22	20:01	13 18:55 (4)	20 17:58 (12)	16:18 15:32
8	04:27	05:23	20:11 (2)	06:29	18:39 (4)	07:33 17:37 (12)
	22:14	21:19	19 20:30 (2)	19:58 18 18:57 (4)	21 17:58 (12)	16:16 15:31
9	04:28	05:26	20:11 (2)	06:32	18:37 (4)	07:36 17:37 (12)
	22:13	21:17	20 20:31 (2)	19:55 21 18:58 (4)	22 17:59 (12)	16:14 15:31
10	04:30	05:28	20:10 (2)	06:34	18:36 (4)	07:38 17:37 (12)
	22:12	21:14	21 20:31 (2)	19:52 23 18:59 (4)	19 17:56 (12)	16:12 15:30
11	04:31	05:30	20:09 (2)	06:36	18:34 (4)	07:40 17:37 (12)
	22:11	21:12	22 20:31 (2)	19:49 25 18:59 (4)	16 17:53 (12)	16:10 15:30
12	04:33	05:32	20:08 (2)	06:38	18:33 (4)	07:42 17:37 (12)
	22:10	21:10	22 20:30 (2)	19:47 26 18:59 (4)	13 18:23 (4)	17:50 (12)
13	04:34	05:34	20:08 (2)	06:40	18:32 (4)	07:44 17:38 (12)
	22:09	21:07	22 20:30 (2)	19:44 27 18:59 (4)	10 18:20 (4)	17:48 (12)
14	04:36	05:36	20:08 (2)	06:42	18:32 (4)	07:46 17:38 (12)
	22:07	21:05	22 20:30 (2)	19:41 27 18:59 (4)	7 17:45 (12)	16:04 15:29
15	04:37	05:38	20:08 (2)	06:44	18:31 (4)	07:49 17:40 (12)
	22:06	21:02	20 20:28 (2)	19:38 28 18:59 (4)	2 17:42 (12)	16:02 15:29
16	04:39	05:40	20:08 (2)	06:46	18:31 (4)	07:51 08:02
	22:05	21:00	18 20:26 (2)	19:35 27 18:58 (4)	18:12 16:00	15:29
17	04:41	05:43	20:09 (2)	06:48	18:31 (4)	07:53 08:04
	22:03	20:57	14 20:23 (2)	19:32 26 18:57 (4)	18:10 15:58	15:29
18	04:42	05:45	20:09 (2)	06:51	18:31 (4)	07:55 08:06
	22:01	20:54	12 20:21 (2)	19:30 25 18:56 (4)	18:07 15:56	15:29
19	04:44	05:47	20:10 (2)	06:53	18:31 (4)	07:58 08:08
	22:00	20:52	9 20:19 (2)	19:27 24 18:55 (4)	18:04 15:54	15:29
20	04:46	05:49	20:11 (2)	06:55	18:32 (4)	08:00 16:42 (11)
	21:58	20:49	5 20:16 (2)	19:24 21 18:53 (4)	18:02 8 16:50 (11)	15:53 08:58
21	04:48	05:51	06:57	18:33 (4)	08:02 16:39 (11)	08:13 15:29
	21:57	20:47	19:21	17 18:50 (4)	17:59 14 16:53 (11)	15:51 15:30
22	04:49	05:53	06:59	18:34 (4)	08:04 16:37 (11)	08:15 15:29
	21:55	20:44	19:18	13 18:47 (4)	17:57 17 16:54 (11)	15:49 15:30
23	04:51	05:55	07:01	18:38 (4)	08:07 16:36 (11)	08:17 15:29
	21:53	20:41	19:16	7 18:45 (4)	17:54 20 16:56 (11)	15:48 15:31
24	04:53	05:58	07:03	08:09	16:34 (11)	08:19 09:00
	21:51	20:39	19:13	17:51	22 16:56 (11)	15:46 15:31
25	04:55	06:00	07:05	07:11	15:34 (11)	08:21 09:00
	21:49	20:36	19:10	16:49	23 15:57 (11)	15:45 15:32
26	04:57	06:02	07:08	07:13	15:33 (11)	08:23 09:00
	21:47	20:33	19:07	16:46	24 15:57 (11)	15:43 15:33
27	04:59	06:04	07:10	07:16	15:33 (11)	08:25 09:00
	21:45	20:31	19:04	16:44	25 15:58 (11)	15:42 15:34
28	05:01	06:06	07:12	07:18	15:32 (11)	08:27 09:01
	21:43	20:28	19:02	16:41	26 15:58 (11)	15:41 15:35
29	05:03	06:08	07:14	07:20	15:33 (11)	08:29 09:01
	21:41	20:25	18:59	16:39	25 15:58 (11)	15:39 15:36
30	05:05	06:10	07:16	07:23	15:32 (11)	08:31 09:01
	21:39	20:23	18:56	16:37	25 15:57 (11)	15:38 15:37
31	05:07	06:13		07:25	15:33 (11)	09:00 15:37
	21:37	20:20		16:34	24 15:57 (11)	15:38 15:38
Potential sun hours	538	474	386	321	241	207
Total, worst case		277	373	444	89	
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		140	172	126	7	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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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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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
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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 15:36
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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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
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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
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
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Rigas iela 31B - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (740)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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
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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	04:53 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
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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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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
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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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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		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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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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
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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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 21:37	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_Nordex163 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
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	04:38 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 19:04	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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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	08:48 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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 20:22	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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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
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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_Nordex163 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
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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		

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 15:53	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 21:38	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												
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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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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Total, worst case												
Sun reduction												
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Table layout: For each day in each month the following matrix apply

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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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

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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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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_Nordex163 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
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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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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
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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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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	05:38 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 21:29	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
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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 16:10	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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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
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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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	15:51	16:59	18:04	20:13	21:19	22:13	22:14	21:17	19:55	18:31	16:14	15:30
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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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	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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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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		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)

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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
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 16:41	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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	05:41 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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 21:10	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 22:21	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 21:10	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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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	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	18:09	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	07:44	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
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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
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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	17:30	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	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	15:35
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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	06:47 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
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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	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
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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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	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
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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	21:29	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
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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
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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	07:39	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	17:30	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	15:35
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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SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	06:47 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_Nordex163 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.

	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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
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	04:19 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		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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 19:36	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 17:51	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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	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	04:22	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	06:28	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
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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
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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	21:29	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	07:44	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
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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	07:39	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	06:11	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	15:38	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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	04:22	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	04:19	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	06:47	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	07:44	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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Riga 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	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	07:05 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
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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
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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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 17:52	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		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	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_Nordex163 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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Sauliešis - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (782)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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	20:17	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	05:17	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	15:34
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	05:13	04:20	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
	15:51	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	05:07	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	19:53	18:29	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	15:30
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	06:42	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	19:38	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	15:29
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	05:51	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	04:51	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	04:16	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
	16:28	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	04:18	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	15:38	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		16:34		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	08:21 16:40	16:02 (2) 17:46	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
2	09:00 15:40	08:19 16:42	16:01 (2) 17:48	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
3	09:00 15:42	08:17 16:44	16:00 (2) 17:50	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
4	08:59 15:43	08:15 16:47	15:58 (2) 17:53	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
5	08:59 15:45	08:12 16:49	15:58 (2) 17:55	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 16:22
6	08:58 15:46	08:10 16:52	15:57 (2) 17:57	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
7	08:57 15:48	08:08 16:54	15:57 (2) 17:59	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
8	08:57 15:49	08:06 16:56	15:57 (2) 18:02	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
9	08:56 15:51	08:03 16:59	15:57 (2) 18:04	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
10	08:55 15:53	08:01 17:01	15:57 (2) 18:06	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
11	08:54 15:55	07:59 17:03	15:58 (2) 18:08	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
12	08:53 15:56	07:56 17:06	15:58 (2) 18:11	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
13	08:52 15:58	07:54 17:08	15:59 (2) 18:13	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
14	08:51 16:00	07:52 17:11	16:00 (2) 18:15	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
15	08:49 16:02	07:49 17:13	16:01 (2) 18:17	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
16	08:48 16:04	07:47 17:15	16:02 (2) 18:20	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
17	08:47 16:06	07:44 17:18	16:13 (2) 18:22	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	08:04 15:58
18	08:45 16:08	07:42 17:20	16:13 (2) 18:24	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
19	08:44 16:10	07:39 17:22	16:14 (2) 18:26	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	08:08 15:54
20	08:42 16:13	07:37 17:25	16:15 (2) 18:28	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
21	08:41 16:15	07:34 17:27	16:16 (2) 18:31	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
22	08:39 16:17	07:32 17:29	16:17 (2) 18:33	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	08:15 15:49
23	08:38 16:19	07:29 17:32	16:18 (2) 18:35	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	08:17 15:48
24	08:36 16:21	07:26 17:34	16:19 (2) 18:37	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
25	08:34 16:24	07:24 17:36	16:20 (2) 18:39	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
26	08:32 16:26	07:21 17:39	16:21 (2) 18:42	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	08:23 15:43
27	08:31 16:28	07:19 17:41	16:22 (2) 18:44	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	08:25 15:42
28	08:29 16:30	07:16 17:43	16:23 (2) 18:46	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	08:27 15:41
29	08:27 16:33		16:24 (2) 19:48	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	08:29 15:39
30	08:25 16:35		16:25 (2) 19:50	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	08:31 15:38
31	08:23 16:37		16:26 (2) 19:53	05:50 19:53	04:28 22:01	04:28 22:01	04:19 22:20	05:07 21:37	06:13 20:20	07:17 18:56	07:25 16:34	08:32 15:37
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case		250							105		150	
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		49							30		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)

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Sedaskalni (94880100255001) - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (584) 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	12:41 (2) 13:05 (2)	08:21 16:40	07:13 17:46	06:48 19:55	04:27 21:01	04:20 22:03	05:09 21:35	06:15 20:17	07:18 18:53		12:37 (2) 15:37
2	09:00 15:41	12:43 (2) 13:06 (2)	08:19 16:42	07:11 17:48	06:45 19:57	04:25 21:03	04:21 22:04	05:11 21:33	06:17 20:14	07:20 18:50	4	12:41 (2) 15:36
3	09:00 15:42	12:43 (2) 13:05 (2)	08:17 16:44	07:08 17:50	06:42 19:59	04:24 21:06	04:22 22:06	05:13 21:31	06:19 20:12	07:23 18:48	9	12:44 (2) 15:35
4	08:59 15:43	12:44 (2) 13:05 (2)	08:15 16:47	07:05 17:53	06:39 20:02	04:23 21:08	04:23 22:07	05:15 21:29	06:21 20:09	07:25 18:45	13	12:46 (2) 15:34
5	08:59 15:45	12:45 (2) 13:05 (2)	08:12 16:49	07:03 17:55	06:36 20:04	04:22 21:10	04:24 22:08	05:17 21:26	06:23 20:06	07:27 18:42	15	12:48 (2) 15:33
6	08:58 15:46	12:46 (2) 13:05 (2)	08:10 16:52	07:00 17:57	06:34 20:06	04:21 21:12	04:25 22:10	05:19 21:24	06:25 20:03	07:29 18:39	17	12:49 (2) 15:32
7	08:57 15:48	12:47 (2) 13:04 (2)	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	19	12:51 (2) 15:32
8	08:57 15:49	12:48 (2) 13:04 (2)	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:17	04:19 22:12	05:23 21:19	06:30 19:58	07:33 18:34	20	12:52 (2) 15:31
9	08:56 15:51	12:50 (2) 13:03 (2)	08:04 16:59	06:52 18:04	06:25 20:13	05:09 21:19	04:19 22:14	05:26 21:17	06:32 19:55	07:36 18:31	21	12:53 (2) 15:30
10	08:55 15:53	12:52 (2) 13:02 (2)	08:01 17:01	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14	05:28 21:15	06:34 19:52	07:38 18:28	22	12:54 (2) 15:29
11	08:54 15:55	12:55 (2) 13:00 (2)	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	23	12:55 (2) 15:28
12	08:53 15:57	12:57 (2) 13:05 (2)	8 16:30 (1)	06:43 18:11	06:17 20:19	05:02 21:25	04:17 22:10	05:32 21:10	06:38 19:47	07:42 18:23	24	12:56 (2) 15:27
13	08:52 15:58	12:58 (2) 13:06 (2)	13 16:32 (1)	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	25	12:57 (2) 15:26
14	08:51 16:00	12:59 (2) 13:11 (2)	17 16:35 (1)	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	26	12:58 (2) 15:25
15	08:49 16:02	13:00 (2) 13:13 (2)	20 16:37 (1)	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	27	12:59 (2) 15:24
16	08:48 16:04	13:01 (2) 13:15 (2)	22 16:39 (1)	06:32 18:20	06:06 20:28	04:54 21:33	04:15 22:19	05:41 21:00	06:46 19:35	07:51 18:12	28	13:00 (2) 15:23
17	08:47 16:06	13:02 (2) 13:17 (2)	23 16:39 (1)	06:30 18:22	06:04 20:30	04:52 21:35	04:15 22:20	05:43 21:03	06:49 19:33	07:53 18:10	29	13:01 (2) 15:22
18	08:46 16:08	13:03 (2) 13:19 (2)	24 16:39 (1)	06:27 18:24	06:01 20:32	04:50 21:37	04:15 22:20	05:45 21:05	06:51 19:30	07:56 18:07	30	13:02 (2) 15:21
19	08:44 16:11	13:04 (2) 13:21 (2)	25 16:40 (1)	06:24 18:24	05:58 20:32	04:48 21:37	04:15 22:20	05:47 21:07	06:53 19:27	07:58 18:04	31	13:03 (2) 15:20
20	08:43 16:13	13:05 (2) 13:23 (2)	26 16:41 (1)	06:21 18:25	05:56 20:33	04:46 21:39	04:15 22:21	05:49 21:08	06:55 19:24	08:00 18:02		13:04 (2) 15:19
21	08:41 16:15	13:06 (2) 13:25 (2)	27 16:42 (1)	06:18 18:26	05:53 20:34	04:44 21:40	04:15 22:22	05:51 21:09	06:57 19:21	08:02 17:59	25	13:05 (2) 15:18
22	08:39 16:17	13:07 (2) 13:27 (2)	28 16:43 (1)	06:16 18:27	05:50 20:35	04:42 21:41	04:15 22:23	05:53 21:10	06:59 19:22	08:05 17:57	26	13:06 (2) 15:17
23	08:38 16:19	13:08 (2) 13:29 (2)	29 16:44 (1)	06:13 18:28	05:48 20:36	04:40 21:42	04:15 22:24	05:55 21:11	07:01 19:23	08:07 17:58	27	13:07 (2) 15:16
24	08:36 16:21	13:09 (2) 13:31 (2)	30 16:45 (1)	06:10 18:29	05:45 20:37	04:39 21:43	04:15 22:25	05:58 21:12	07:03 19:24	08:09 17:59	28	13:08 (2) 15:15
25	08:34 16:23	13:10 (2) 13:33 (2)	31 16:46 (1)	06:07 18:30	05:43 20:38	04:37 21:44	04:16 22:26	06:00 21:13	07:05 19:25	07:11 17:59	29	13:09 (2) 15:14
26	08:33 16:26	13:11 (2) 13:35 (2)	18 16:47 (1)	06:04 18:31	05:40 20:39	04:35 21:45	04:16 22:27	06:02 21:14	07:08 19:26	07:14 17:59	30	13:10 (2) 15:13
27	08:31 16:28	13:12 (2) 13:37 (2)	13 16:48 (1)	06:02 18:32	05:38 20:40	04:34 21:46	04:17 22:28	06:04 21:15	07:10 19:27	07:16 17:59	31	13:11 (2) 15:12
28	08:29 16:30	13:13 (2) 13:39 (2)	7 16:49 (1)	05:59 18:33	05:35 20:41	04:32 21:47	04:17 22:29	06:06 21:16	07:12 19:28	07:18 17:59	22	13:12 (2) 15:11
29	08:27 16:33	13:14 (2) 13:41 (2)	17:43 16:50 (1)	05:56 18:34	05:32 20:42	04:31 21:48	04:18 22:30	06:08 21:17	07:14 19:29	07:21 17:59	20	13:13 (2) 15:10
30	08:25 16:35	13:15 (2) 13:43 (2)	19:48 16:51 (1)	05:53 18:35	05:30 20:43	04:29 21:49	04:19 22:31	06:10 21:18	07:16 19:30	07:23 17:59	16	13:14 (2) 15:09
31	08:23 16:37	13:16 (2) 13:45 (2)	20:59 16:52 (1)	05:50 18:36	05:27 20:44	04:28 21:50	04:20 22:32	06:13 21:19	07:25 19:31	07:25 17:59	12	13:15 (2) 15:08
Potential sun hours	227	262	331	365	429	515	539	538	474	386	321	241
Total, worst case												207
Sun reduction	0.11		0.19									696
Oper. time red.	1.00		1.00									0.06
Wind dir. red.	1.00		1.00									1.00
Total reduction	0.11		0.19									0.06
Total, real	21		64									43

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Sietini - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (453)
Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed 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 17:37
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	03:21 22:19	02:16 21:33	01:11 20:14	00:06 18:50	00:01 17:36
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	03:22 22:19	02:17 21:31	01:12 20:12	00:07 18:48	00:02 17:35
4	08:59 15:43	08:15 16:47	16:05 (2)	07:05 17:53	06:39 20:01	05:20 21:08	04:23 22:07	03:22 22:18	02:18 21:28	01:13 20:09	00:08 18:45	00:03 17:34
5	08:59 15:45	08:12 16:49	16:04 (2)	07:03 17:55	06:36 20:04	05:18 21:10	04:22 22:08	03:24 22:17	02:20 21:26	01:15 20:06	00:10 18:42	00:05 17:33
6	08:58 15:46	08:10 16:52	16:02 (2)	07:00 17:57	06:34 20:06	05:15 21:12	04:21 22:09	03:25 22:16	02:21 21:24	01:16 20:03	00:11 18:39	00:06 17:32
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	03:26 22:16	02:22 21:22	01:17 20:01	00:12 18:37	00:07 17:31
8	08:57 15:49	08:06 16:56	16:00 (2)	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12	04:27 22:15	03:23 21:19	02:18 20:00	01:13 18:34	00:08 17:30
9	08:56 15:51	08:03 16:59	16:00 (2)	06:52 18:04	06:25 20:13	05:09 21:19	04:18 22:13	04:28 22:14	03:26 21:17	02:20 20:00	01:14 18:31	00:09 17:30
10	08:55 15:53	08:01 17:01	16:00 (2)	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14	04:30 22:12	03:28 21:14	02:22 20:00	01:15 18:28	00:10 17:30
11	08:54 15:55	07:59 17:03	16:00 (2)	06:46 18:08	06:20 20:17	05:04 21:23	04:17 22:15	04:31 22:11	03:30 21:12	02:24 20:00	01:16 18:26	00:11 17:30
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	04:33 22:10	03:32 21:10	02:26 20:00	01:17 18:23	00:12 17:30
13	08:52 15:58	07:54 17:08	16:00 (2)	06:41 18:13	06:14 20:21	05:00 21:27	04:16 22:17	04:34 22:09	03:34 21:07	02:28 20:00	01:18 18:20	00:13 17:30
14	08:51 16:00	07:52 17:11	16:00 (2)	06:38 18:15	06:12 20:24	04:58 21:29	04:16 22:18	04:36 22:08	03:36 21:05	02:30 20:00	01:19 18:18	00:14 17:30
15	08:49 16:02	07:49 17:13	16:00 (2)	06:35 18:17	06:09 20:26	04:56 21:31	04:15 22:18	04:37 22:06	03:38 21:02	02:31 20:00	01:20 18:15	00:15 17:30
16	08:48 16:04	07:47 17:15	16:00 (2)	06:32 18:20	06:06 20:28	04:53 21:33	04:15 22:19	04:39 22:05	03:40 21:00	02:32 20:00	01:21 18:12	00:16 17:30
17	08:47 16:06	07:44 17:18	16:00 (2)	06:29 18:22	06:04 20:30	04:51 21:35	04:15 22:20	04:40 22:03	03:41 20:57	02:33 20:00	01:22 18:10	00:17 17:30
18	08:45 16:08	07:42 17:20	16:00 (2)	06:27 18:24	06:01 20:32	04:50 21:37	04:15 22:20	04:42 22:02	03:42 20:55	02:34 20:00	01:23 18:07	00:18 17:30
19	08:44 16:10	07:39 17:22	16:00 (2)	06:24 18:26	05:58 20:35	04:48 21:39	04:15 22:21	04:44 22:00	03:43 20:52	02:35 20:00	01:24 18:04	00:19 17:30
20	08:42 16:13	07:37 17:25	16:00 (2)	06:21 18:28	05:56 20:37	04:46 21:41	04:15 22:21	04:46 21:58	03:44 20:49	02:36 20:00	01:25 18:02	00:20 17:30
21	08:41 16:15	07:34 17:27	16:00 (2)	06:18 18:31	05:53 20:39	04:44 21:43	04:15 22:21	04:47 21:57	03:45 20:47	02:37 20:00	01:26 17:59	00:21 17:30
22	08:39 16:17	07:32 17:29	16:00 (2)	06:16 18:33	05:50 20:41	04:42 21:45	04:15 22:21	04:49 21:55	03:46 20:44	02:38 20:00	01:27 17:57	00:22 17:30
23	08:38 16:19	07:29 17:32	16:00 (2)	06:13 18:35	05:48 20:43	04:40 21:47	04:15 22:22	04:51 21:53	03:47 20:41	02:39 20:00	01:28 17:54	00:23 17:30
24	08:36 16:21	07:26 17:34	16:00 (2)	06:10 18:37	05:45 20:46	04:39 21:49	04:15 22:22	04:53 21:51	03:48 20:39	02:40 20:00	01:29 17:51	00:24 17:30
25	08:34 16:24	07:24 17:36	16:00 (2)	06:07 18:39	05:43 20:48	04:37 21:51	04:16 22:22	04:55 21:49	03:49 20:36	02:41 20:00	01:30 17:49	00:25 17:30
26	08:32 16:26	07:21 17:39	16:00 (2)	06:04 18:42	05:40 20:50	04:35 21:53	04:16 22:21	04:57 21:47	03:50 20:33	02:42 20:00	01:31 17:46	00:26 17:30
27	08:31 16:28	07:19 17:41	16:00 (2)	06:02 18:44	05:37 20:52	04:34 21:54	04:17 22:21	04:59 21:45	03:51 20:31	02:43 20:00	01:32 17:44	00:27 17:30
28	08:29 16:30	07:16 17:43	16:00 (2)	05:59 18:46	05:35 20:55	04:32 21:56	04:17 22:21	05:01 21:43	03:52 20:28	02:44 20:00	01:33 17:42	00:28 17:30
29	08:27 16:33		16:00 (2)	05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	05:03 21:41	03:53 20:25	02:45 20:00	01:34 17:40	00:29 17:30
30	08:25 16:35		16:00 (2)	05:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	05:05 21:39	03:54 20:23	02:46 20:00	01:35 17:38	00:30 17:30
31	08:23 16:37		16:00 (2)	05:50 19:53	05:27 22:01	04:28 22:01	04:18 22:20	05:07 21:37	03:55 20:20	02:47 20:00	01:36 17:36	00:31 17:30
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case		363								252	118	
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		71								71	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	20:17	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	05:17	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	15:34
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	05:13	04:20	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
	15:51	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	05:07	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	19:53	18:29	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	15:30
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	06:42	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	19:38	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	15:29
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	05:51	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	04:51	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	04:16	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
	16:28	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	04:18	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	15:38	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		16:34		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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
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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
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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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SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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
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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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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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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Total reduction												
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SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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.

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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
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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_Nordex163 Shadow receptor: Sili - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (446)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed 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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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

No operational time reduction. It is assumed 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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 16:31	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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 16:06	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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Valdemara iela 13 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (706)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Valdemara iela 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Valdemara iela 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (742)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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		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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	04:52 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
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 22:09	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 16:05	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	04:52 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 19:36	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	08:34 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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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
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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 19:36	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 16:10	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
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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Valmieras iela 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (763)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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)

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Valmieras iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (753)
 Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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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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
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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	05:41 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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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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	09:19 (5) 17:46	07:14 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	07:28 16:32	08:33 15:37
2	09:00 15:41	08:19 16:42	09:19 (5) 17:48	07:11 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	09:21 (5) 17:50	07:08 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	09:22 (5) 17:53	07:06 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	09:24 (5) 17:55	07:03 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	09:34 (5) 17:57	07:00 20:06	05:16 21:12	04:21 22:10	04:25 22:17	05:19 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	09:38 (5) 18:00	06:57 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 16:57	09:41 (5) 18:06	06:55 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	09:44 (5) 18:10	06:52 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	09:47 (5) 18:16	06:49 20:15	05:07 21:21	04:18 22:14	04:30 22:13	05:28 21:15	06:34 19:52	07:38 18:29	07:48 16:12	08:48 15:30
11	08:54 15:55	07:59 17:04	09:50 (5) 18:21	06:46 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	09:53 (5) 18:24	06:44 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 15:59	07:54 17:08	09:56 (5) 18:27	06:41 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 16:01	07:52 17:11	09:58 (5) 18:29	06:38 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 16:03	07:50 17:13	10:00 (5) 18:31	06:35 20:26	04:56 21:32	04:15 22:19	04:37 22:06	05:39 21:02	06:45 19:38	07:49 18:15	08:00 16:02	08:54 15:29
16	08:48 16:05	07:47 17:16	10:03 (5) 18:34	06:33 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 16:07	07:45 17:18	10:06 (5) 18:37	06:30 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 16:09	07:42 17:20	10:09 (5) 18:40	06:27 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	10:12 (5) 18:43	06:24 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	10:15 (5) 18:46	06:21 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	10:18 (5) 18:49	06:19 20:39	04:44 21:44	04:15 22:22	04:48 21:57	05:51 20:47	06:57 19:22	08:02 17:59	08:13 15:51	08:59 15:30
22	08:40 16:17	07:32 17:30	10:21 (5) 18:52	06:16 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	10:24 (5) 18:55	06:13 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	10:27 (5) 18:58	06:10 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	10:30 (5) 19:01	06:07 20:48	04:37 21:51	04:16 22:22	04:55 21:50	06:00 20:36	07:06 19:10	08:12 16:49	08:21 15:45	09:00 15:32
26	08:33 16:26	07:22 17:39	10:33 (5) 19:04	06:05 20:50	04:35 21:53	04:16 22:22	04:57 21:48	06:02 20:34	07:08 19:07	08:14 16:47	08:23 15:43	09:01 15:33
27	08:31 16:28	07:19 17:41	10:36 (5) 19:07	06:02 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	10:39 (5) 19:10	05:59 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	07:13 17:45	10:42 (5) 19:13	06:56 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	07:10 17:47	10:45 (5) 19:16	06:53 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	07:05 17:49	10:48 (5) 19:19	06:51 20:59	04:28 22:01	04:20 22:21	05:07 21:38	06:13 20:20	07:25 16:34	07:25 15:38	08:31 15:38	09:01 15:38
Potential sun hours	227	262	365	429	515	539	538	475	386	321	241	207
Total, worst case	293	81									377	
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	32	16									30	

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_Nordex163 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	16:59 (12) 17:16 (12)	06:48 19:55	18:37 (4) 21:01
2	09:00 15:41	08:19 16:42	07:11 17:48	16:58 (12) 17:18 (12)	06:45 19:57	23 21:03
3	08:59 15:42	08:17 16:44	07:08 17:50	16:57 (12) 17:19 (12)	06:42 19:59	20 21:05
4	08:59 15:43	08:14 16:47	07:05 17:53	16:57 (12) 17:18 (12)	06:39 20:01	11 21:08
5	08:58 15:45	08:12 16:49	07:02 17:55	16:57 (12) 17:18 (12)	06:36 20:04	20 21:10
6	08:58 15:46	08:10 16:52	07:00 17:57	16:58 (12) 17:18 (12)	06:34 20:06	18 21:12
7	08:57 15:48	08:08 16:54	06:57 17:59	16:59 (12) 17:16 (12)	06:31 20:08	16 21:14
8	08:56 15:50	08:06 16:56	06:54 18:02	17:00 (12) 17:14 (12)	06:28 20:10	12 21:16
9	08:56 15:51	08:03 16:59	06:52 18:04	17:02 (12) 17:12 (12)	06:25 20:12	8 21:19
10	08:55 15:53	08:01 17:01	06:49 18:06	06:23 20:15	05:06 21:21	22:13 22:14
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	06:01 20:32	04:50 21:37	04:15 22:20
19	08:44 16:11	07:39 17:22	06:24 18:26	17:47 (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	17:44 (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	17:42 (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	17:40 (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) 18:04 (4)	05:48 20:43	04:40 21:47
24	08:36 16:21	07:26 17:34	06:10 18:37	17:38 (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	17:37 (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	17:37 (4) 18:04 (4)	05:40 20:50	04:35 21:52
27	08:31 16:28	07:19 17:41	06:01 18:44	17:36 (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	17:37 (4) 18:04 (4)	05:35 20:54	04:32 21:56
29	08:27 16:33		06:56 19:48	18:36 (4) 19:03 (4)	05:32 20:57	04:31 21:58
30	08:25 16:35		06:53 19:50	18:36 (4) 19:02 (4)	05:30 20:59	04:29 21:59
31	08:23 16:37		06:50 19:53	18:37 (4) 19:01 (4)	04:28 22:01	04:28 22:01
Potential sun hours	227	262	365	429	515	539
Total, worst case		391	468	219	139	
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		76	189	93	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 22:20	05:09 21:35	06:15 20:17	07:18 18:53	07:27 16:32	15:25 (11) 15:51 (11)
2	04:21 22:19	05:11 21:33	06:17 20:14	07:20 18:50	07:30 16:29	15:26 (11) 15:51 (11)
3	04:22 22:19	05:13 21:31	06:19 20:12	07:22 18:48	07:32 16:27	15:26 (11) 15:50 (11)
4	04:23 22:18	05:15 21:28	06:21 20:09	07:25 18:45	07:34 16:25	15:27 (11) 15:49 (11)
5	04:24 22:17	05:17 21:26	20:14 (2) 20:23 (2)	06:23 20:06	07:27 18:42	15:27 (11) 15:46 (11)
6	04:25 22:16	05:19 21:24	20:12 (2) 20:25 (2)	06:25 20:03	07:29 18:39	15:29 (11) 15:44 (11)
7	04:26 22:15	05:21 21:22	20:10 (2) 20:26 (2)	06:27 20:01	07:31 18:37	15:30 (11) 15:42 (11)
8	04:27 22:14	05:23 21:19	20:09 (2) 20:27 (2)	06:29 19:58	18:38 (4) 18:34	15:31 (11) 15:39 (11)
9	04:28 22:13	05:26 21:17	20:08 (2) 20:28 (2)	06:32 19:55	18:35 (4) 18:31	15:34 (11) 15:37 (11)
10	04:30 22:12	05:28 21:14	20:08 (2) 20:29 (2)	06:34 19:52	18:32 (4) 18:28	15:39 (11) 15:30
11	04:31 22:11	05:30 21:12	20:07 (2) 20:29 (2)	06:36 19:49	18:30 (4) 18:26	15:31 (11) 15:30
12	04:33 22:10	05:32 21:10	20:06 (2) 20:28 (2)	06:38 19:47	18:29 (4) 18:23	15:31 (11) 15:29
13	04:34 22:09	05:34 21:07	20:05 (2) 20:28 (2)	06:40 19:44	18:28 (4) 18:20	15:31 (11) 15:29
14	04:36 22:07	05:36 21:05	20:05 (2) 20:28 (2)	06:42 19:41	18:27 (4) 18:18	15:29 (11) 15:29
15	04:37 22:06	05:38 21:02	20:05 (2) 20:28 (2)	06:44 19:38	18:26 (4) 18:15	15:29 (11) 15:29
16	04:39 22:05	05:40 21:00	20:05 (2) 20:26 (2)	06:46 19:35	18:26 (4) 18:12	15:29 (11) 15:29
17	04:41 22:03	05:43 20:57	20:05 (2) 20:23 (2)	06:48 19:32	18:25 (4) 18:10	15:29 (11) 15:29
18	04:42 22:02	05:45 20:54	20:06 (2) 20:21 (2)	06:51 19:30	18:25 (4) 18:07	15:29 (11) 15:29
19	04:44 22:00	05:47 20:52	20:07 (2) 20:19 (2)	06:53 19:27	18:25 (4) 18:04	15:29 (11) 15:29
20	04:46 21:58	05:49 20:49	20:08 (2) 20:16 (2)	06:55 19:24	18:25 (4) 18:02	15:29 (11) 15:29
21	04:48 21:57	05:51 20:47	20:09 (2) 20:14 (2)	06:57 19:21	18:25 (4) 18:49 (4)	15:29 (11) 15:51
22	04:49 21:55	05:53 20:44	20:14 (2) 19:18	19:21 18:47 (4)	17:59 17:57	15:51 16:35 (11)
23	04:51 21:53	05:55 20:41	19:18 19:16	18:47 (4) 18:45 (4)	16:35 (11) 16:47 (11)	15:49 15:48
24	04:53 21:51	05:58 20:39	19:16 19:13	18:45 (4) 18:42 (4)	16:47 (11) 16:30 (11)	15:48 15:46
25	04:55 21:49	06:00 20:36	19:13 19:10	18:42 (4) 18:39 (4)	16:30 (11) 16:49	15:46 15:45
26	04:57 21:47	06:02 20:33	19:10 19:07	18:39 (4) 17:13	16:49 15:28 (11)	15:45 15:23
27	04:59 21:45	06:04 20:31	19:08 19:04	17:13 16:46	15:28 (11) 15:50 (11)	15:23 15:43
28	05:01 21:43	06:06 20:28	19:04 19:02	16:46 16:41	15:27 (11) 15:26 (11)	15:43 15:41
29	05:03 21:41	06:08 20:25	19:02 18:59	16:41 17:20	15:26 (11) 15:26 (11)	15:41 15:39
30	05:05 21:39	06:10 20:23	18:59 18:56	17:39 17:23	15:52 (11) 15:26 (11)	15:39 15:31
31	05:07 21:37	06:13 20:20	18:56 18:56	17:23 16:37	15:26 (11) 15:51 (11)	15:31 15:38
Potential sun hours	538	474	386	321	241	207
Total, worst case		289	387	410	154	
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		146	179	116	12	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

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Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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) []

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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	16:33 (2)	06:48	05:27
	15:39	16:40	17:46	20	16:53 (2)	19:55
2	09:00	08:19	07:11	16:34 (2)	06:45	05:25
	15:41	16:42	17:48	17	16:51 (2)	19:57
3	09:00	08:17	07:08	16:35 (2)	06:42	05:23
	15:42	16:44	17:50	13	16:48 (2)	19:59
4	08:59	14:56 (4)	08:15	16:39 (2)	06:39	05:20
	15:43	16:47	17:53	5	16:44 (2)	20:01
5	08:59	14:56 (4)	08:12	07:03	06:36	05:18
	15:45	16:49	17:55		20:04	21:10
6	08:58	14:55 (4)	08:10	07:00	06:34	05:15
	15:46	16:52	17:57		20:06	21:12
7	08:57	14:55 (4)	08:08	06:57	06:31	05:13
	15:48	16:54	17:59		20:08	21:14
8	08:57	14:55 (4)	08:06	06:54	06:28	05:11
	15:49	16:56	18:02		20:10	21:16
9	08:56	14:55 (4)	08:03	06:52	06:25	05:09
	15:51	16:59	18:04		20:12	21:19
10	08:55	14:56 (4)	08:01	06:49	06:23	05:06
	15:53	17:01	18:06		20:15	21:21
11	08:54	14:55 (4)	07:59	06:46	06:20	05:04
	15:55	17:03	18:08		20:17	21:23
12	08:53	14:55 (4)	07:56	06:43	06:17	05:02
	15:57	17:06	18:11		20:19	21:25
13	08:52	14:55 (4)	07:54	06:41	06:14	05:00
	15:58	17:08	18:13		20:21	21:27
14	08:51	14:55 (4)	07:52	06:38	06:12	04:58
	16:00	17:11	18:15		20:24	21:29
15	08:49	14:55 (4)	07:49	06:35	06:09	04:56
	16:02	17:13	18:17		20:26	21:31
16	08:48	14:56 (4)	07:47	16:38 (2)	06:32	06:06
	16:04	17:15	18:20	5	16:43 (2)	20:28
17	08:47	14:56 (4)	07:44	16:35 (2)	06:29	06:04
	16:06	17:18	18:22	10	16:45 (2)	20:30
18	08:45	14:56 (4)	07:42	16:34 (2)	06:27	06:01
	16:08	17:20	18:24	14	16:48 (2)	20:32
19	08:44	14:56 (4)	07:39	16:33 (2)	06:24	05:58
	16:10	17:22	18:26	18	16:51 (2)	20:35
20	08:42	14:57 (4)	07:37	16:32 (2)	06:21	05:56
	16:13	17:25	18:28	21	16:53 (2)	20:37
21	08:41	14:58 (4)	07:34	16:31 (2)	06:18	05:53
	16:15	17:27	18:31	24	16:55 (2)	20:39
22	08:39	14:58 (4)	07:32	16:31 (2)	06:16	05:50
	16:17	17:29	18:33	25	16:56 (2)	20:41
23	08:38	14:59 (4)	07:29	16:30 (2)	06:13	05:48
	16:19	17:32	18:35	26	16:56 (2)	20:43
24	08:36	15:00 (4)	07:26	16:30 (2)	06:10	05:45
	16:21	17:34	18:37	25	16:55 (2)	20:46
25	08:34	15:01 (4)	07:24	16:30 (2)	06:07	05:43
	16:24	17:36	18:39	26	16:56 (2)	20:48
26	08:32	15:02 (4)	07:21	16:30 (2)	06:04	05:40
	16:26	17:39	18:42	25	16:55 (2)	20:50
27	08:31	15:02 (4)	07:19	16:30 (2)	06:02	05:37
	16:28	17:41	18:44	24	16:54 (2)	20:52
28	08:29	15:04 (4)	07:16	16:31 (2)	05:59	05:35
	16:30	17:43	18:46	22	16:53 (2)	20:55
29	08:27	15:07 (4)		06:56	05:32	04:31
	16:33	15:14 (4)		19:48	20:57	21:58
30	08:25			06:53	05:30	04:29
	16:35			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	422	265	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	46	51	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_Nordex163 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	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	17:11 (2) 17:21 (2)	07:48 16:12
11	04:31 22:11	05:30 21:12	06:36 19:49	07:40 18:26	17:08 (2) 17:23 (2)	07:50 16:10
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	17:06 (2) 17:24 (2)	07:53 16:07
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	17:05 (2) 17:26 (2)	07:55 16:05
14	04:36 22:07	05:36 21:05	06:42 19:41	07:47 18:18	17:03 (2) 17:26 (2)	07:57 16:03
15	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	17:02 (2) 17:26 (2)	07:59 16:02
16	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	17:02 (2) 17:27 (2)	08:02 16:00
17	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	17:01 (2) 17:27 (2)	08:04 15:58
18	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	17:02 (2) 17:27 (2)	08:06 15:56
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	17:01 (2) 17:27 (2)	08:08 15:54
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	17:01 (2) 17:26 (2)	08:10 15:52
21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	17:02 (2) 17:26 (2)	08:13 15:51
22	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:56	17:02 (2) 17:22 (2)	08:15 15:49
23	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	17:03 (2) 17:20 (2)	08:17 15:48
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	17:04 (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	16:06 (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	16:08 (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	15:43 15:42	08:25 15:42
28	05:01 21:43	06:06 20:28	07:12 19:02	07:18 16:41	08:27 15:41	14:35 (4) 14:57 (4)
29	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	14:36 (4) 14:56 (4)
30	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	14:36 (4) 14:55 (4)
31	05:07 21:37	06:13 20:20	07:25 16:34	07:25 16:34		09:00 15:38
Potential sun hours	538	474	386	321	241	207
Total, worst case				325	354	72
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				92	28	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163 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	16:17 (11)	06:48		18:33 (12)	05:28	19:49 (4)	04:27
	15:39	16:40			17:46	38 16:55 (11)	19:55	25	18:58 (12)	21:01	28 20:17 (4)	22:02
2	09:00	08:19			07:11	16:16 (11)	06:45		18:34 (12)	05:25	19:47 (4)	04:26
	15:41	16:42			17:48	39 16:55 (11)	19:57	22	18:56 (12)	21:03	30 20:17 (4)	22:04
3	08:59	08:17			07:08	16:16 (11)	06:42		18:35 (12)	05:23	19:47 (4)	04:24
	15:42	16:45			17:50	39 16:55 (11)	19:59	19	18:54 (12)	21:05	31 20:18 (4)	22:05
4	08:59	08:14			07:05	16:15 (11)	06:39		18:37 (12)	05:20	19:46 (4)	04:23
	15:43	16:47			17:53	40 16:55 (11)	20:01	14	18:51 (12)	21:08	33 20:19 (4)	22:07
5	08:58	08:12			07:03	16:15 (11)	06:36		18:42 (12)	05:18	19:45 (4)	04:22
	15:45	16:49			17:55	40 16:55 (11)	20:04	4	18:46 (12)	21:10	35 20:20 (4)	22:08
6	08:58	08:10			07:00	16:15 (11)	06:34			05:16	19:44 (4)	04:21
	15:46	16:52			17:57	40 16:55 (11)	20:06			21:12	35 20:19 (4)	22:09
7	08:57	08:08			06:57	16:15 (11)	06:31			05:13	19:44 (4)	04:20
	15:48	16:54			17:59	40 16:55 (11)	20:08			21:14	36 20:20 (4)	22:11
8	08:56	08:06			06:54	16:15 (11)	06:28			05:11	19:43 (4)	04:19
	15:50	16:56			18:02	39 16:54 (11)	20:10			21:16	37 20:20 (4)	22:12
9	08:56	08:03			06:52	16:15 (11)	06:25		19:37 (14)	05:09	19:43 (4)	04:19
	15:51	16:59			18:04	38 16:53 (11)	20:12	6	19:43 (14)	21:19	37 20:20 (4)	22:13
10	08:55	08:01			06:49	16:15 (11)	06:23		19:34 (14)	05:06	19:43 (4)	04:18
	15:53	17:01			18:06	37 16:52 (11)	20:15	10	19:44 (14)	21:21	37 20:20 (4)	22:14
11	08:54	07:59			06:46	16:16 (11)	06:20		19:32 (14)	05:04	19:43 (4)	04:17
	15:55	17:03			18:08	36 16:52 (11)	20:17	14	19:46 (14)	21:23	37 20:20 (4)	22:15
12	08:53	07:56			06:43	16:17 (11)	06:17		19:31 (14)	05:02	19:43 (4)	04:17
	15:57	17:06			18:11	34 16:51 (11)	20:19	18	19:49 (14)	21:25	37 20:20 (4)	22:16
13	08:52	07:54			06:41	16:18 (11)	06:14		19:30 (14)	05:00	19:43 (4)	04:16
	15:59	17:08			18:13	31 16:49 (11)	20:21	21	19:51 (14)	21:27	37 20:20 (4)	22:17
14	08:50	07:52			06:38	16:19 (11)	06:12		19:29 (14)	04:58	19:43 (4)	04:16
	16:00	17:11			18:15	28 16:47 (11)	20:24	22	19:51 (14)	21:29	37 20:20 (4)	22:17
15	08:49	07:49			06:35	16:20 (11)	06:09		19:29 (14)	04:56	19:43 (4)	04:15
	16:02	17:13			18:17	25 16:45 (11)	20:26	23	19:52 (14)	21:31	38 20:21 (4)	22:18
16	08:48	07:47			06:32	16:22 (11)	06:06		19:28 (14)	04:54	19:44 (4)	04:15
	16:04	17:15			18:20	21 16:43 (11)	20:28	23	19:51 (14)	21:33	36 20:20 (4)	22:19
17	08:47	07:44			06:29	16:26 (11)	06:04		19:29 (14)	04:52	19:44 (4)	04:15
	16:06	17:18			18:22	14 16:40 (11)	20:30	23	19:52 (14)	21:35	36 20:20 (4)	22:19
18	08:45	07:42			06:27	17:44 (12)	06:01		19:28 (14)	04:50	19:44 (4)	04:15
	16:08	17:20			18:24	11 17:55 (12)	20:32	23	19:51 (14)	21:37	35 20:19 (4)	22:20
19	08:44	07:39			06:24	17:41 (12)	05:58		19:28 (14)	04:48	19:45 (4)	04:15
	16:11	17:22			18:26	16 17:57 (12)	20:35	21	19:49 (14)	21:39	35 20:20 (4)	22:20
20	08:42	07:37		16:35 (11)	06:21	17:38 (12)	05:56		19:29 (14)	04:46	19:45 (4)	04:15
	16:13	17:25	4	16:39 (11)	18:28	21 17:59 (12)	20:37	20	19:49 (14)	21:41	34 20:19 (4)	22:21
21	08:41	07:34		16:29 (11)	06:18	17:37 (12)	05:53		19:29 (14)	04:44	19:45 (4)	04:15
	16:15	17:27	15	16:44 (11)	18:31	24 18:01 (13)	20:39	18	19:47 (14)	21:43	33 20:18 (4)	22:21
22	08:39	07:32		16:26 (11)	06:16	17:35 (12)	05:50		19:31 (14)	04:42	19:46 (4)	04:15
	16:17	17:29	22	16:48 (11)	18:33	28 18:03 (13)	20:41	15	19:46 (14)	21:45	32 20:18 (4)	22:21
23	08:38	07:29		16:24 (11)	06:13	17:35 (12)	05:48		19:32 (14)	04:40	19:46 (4)	04:15
	16:19	17:32	25	16:49 (11)	18:35	30 18:05 (13)	20:43	12	19:44 (14)	21:47	31 20:17 (4)	22:21
24	08:36	07:26		16:22 (11)	06:10	17:34 (12)	05:45		19:36 (14)	04:39	19:47 (4)	04:16
	16:21	17:34	29	16:51 (11)	18:37	30 18:04 (13)	20:46	4	19:40 (14)	21:49	30 20:17 (4)	22:21
25	08:34	07:24		16:21 (11)	06:07	17:33 (12)	05:43			04:37	19:48 (4)	04:16
	16:24	17:36	32	16:53 (11)	18:39	31 18:04 (13)	20:48			21:51	29 20:17 (4)	22:21
26	08:32	07:21		16:20 (11)	06:04	17:32 (12)	05:40			04:35	19:49 (4)	04:16
	16:26	17:39	33	16:53 (11)	18:42	31 18:03 (13)	20:50			21:52	27 20:16 (4)	22:21
27	08:31	07:19		16:18 (11)	06:02	17:31 (12)	05:38		19:58 (4)	04:34	19:50 (4)	04:17
	16:28	17:41	36	16:54 (11)	18:44	30 18:01 (12)	20:52	11	20:09 (4)	21:54	26 20:16 (4)	22:21
28	08:29	07:16		16:17 (11)	05:59	17:32 (12)	05:35		19:54 (4)	04:32	19:51 (4)	04:18
	16:31	17:43	37	16:54 (11)	18:46	29 18:01 (12)	20:54	17	20:11 (4)	21:56	24 20:15 (4)	22:21
29	08:27				06:56	18:32 (12)	05:32		19:52 (4)	04:31	19:51 (4)	04:18
	16:33				19:48	28 19:00 (12)	20:57	22	20:14 (4)	21:58	23 20:14 (4)	22:21
30	08:25				06:53	18:32 (12)	05:30		19:50 (4)	04:29	19:52 (4)	04:19
	16:35				19:50	27 18:59 (12)	20:59	25	20:15 (4)	21:59	21 20:13 (4)	22:20
31	08:23				06:50	18:32 (12)				04:28	19:54 (4)	
	16:37				19:53	26 18:58 (12)				22:01	19 20:13 (4)	
Potential sun hours	227	262			365		429		515		539	
Total, worst case			233		941		432		996		443	
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			45		379		184		579		248	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163 Shadow receptor: Veverzemnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (586)
Sunshine probability S (Average daily sunshine hours) []

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

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

	July				August				September				October				November		December	
1	04:20		21:23 (2)	05:09		19:53 (4)	06:15		19:31 (14)	07:18		16:56 (11)	07:27		08:33					
	22:20	14	21:37 (2)	21:35	38	20:31 (4)	20:17	14	19:45 (14)	18:53	33	17:29 (11)	16:32		15:37					
2	04:21		21:24 (2)	05:11		19:53 (4)	06:17		19:32 (14)	07:20		16:55 (11)	07:30		08:34					
	22:19	13	21:37 (2)	21:33	38	20:31 (4)	20:14	10	19:42 (14)	18:50	35	17:30 (11)	16:29		15:36					
3	04:22		21:25 (2)	05:13		19:53 (4)	06:19		19:34 (14)	07:23		16:54 (11)	07:32		08:36					
	22:19	12	21:37 (2)	21:31	38	20:31 (4)	20:12	6	19:40 (14)	18:48	36	17:30 (11)	16:27		15:35					
4	04:23		21:25 (2)	05:15		19:53 (4)	06:21			07:25		16:52 (11)	07:34		08:38					
	22:18	11	21:36 (2)	21:28	37	20:30 (4)	20:09			18:45	38	17:30 (11)	16:25		15:34					
5	04:24		21:26 (2)	05:17		19:54 (4)	06:23			07:27		16:52 (11)	07:37		08:40					
	22:17	9	21:35 (2)	21:26	36	20:30 (4)	20:06			18:42	39	17:31 (11)	16:23		15:33					
6	04:25		21:27 (2)	05:19		19:54 (4)	06:25			07:29		16:51 (11)	07:39		08:41					
	22:16	8	21:35 (2)	21:24	36	20:30 (4)	20:03			18:39	40	17:31 (11)	16:20		15:33					
7	04:26		21:28 (2)	05:21		19:54 (4)	06:27		18:39 (12)	07:31		16:51 (11)	07:41		08:43					
	22:15	6	21:34 (2)	21:22	35	20:29 (4)	20:01	2	18:41 (12)	18:37	40	17:31 (11)	16:18		15:32					
8	04:27		20:09 (4)	05:24		19:55 (4)	06:30		18:33 (12)	07:33		16:50 (11)	07:43		08:44					
	22:14	8	21:33 (2)	21:19	34	20:29 (4)	19:58	13	18:46 (12)	18:34	40	17:30 (11)	16:16		15:31					
9	04:29		20:06 (4)	05:26		19:55 (4)	06:32		18:30 (12)	07:36		16:50 (11)	07:46		08:46					
	22:13	10	20:16 (4)	21:17	33	20:28 (4)	19:55	18	18:48 (12)	18:31	40	17:30 (11)	16:14		15:31					
10	04:30		20:05 (4)	05:28		19:56 (4)	06:34		18:28 (12)	07:38		16:50 (11)	07:48		08:47					
	22:12	12	20:17 (4)	21:14	31	20:27 (4)	19:52	21	18:49 (12)	18:28	40	17:30 (11)	16:12		15:30					
11	04:31		20:03 (4)	05:30		19:57 (4)	06:36		18:26 (12)	07:40		16:50 (11)	07:50		08:49					
	22:11	16	20:19 (4)	21:12	29	20:26 (4)	19:49	24	18:50 (12)	18:26	39	17:29 (11)	16:10		15:30					
12	04:33		20:03 (4)	05:32		19:58 (4)	06:38		18:25 (12)	07:42		16:49 (11)	07:53		08:50					
	22:10	18	20:21 (4)	21:10	27	20:25 (4)	19:47	25	18:50 (12)	18:23	39	17:28 (11)	16:08		15:29					
13	04:34		20:01 (4)	05:34		19:58 (4)	06:40		18:23 (12)	07:44		16:50 (11)	07:55		08:51					
	22:09	20	20:21 (4)	21:07	25	20:23 (4)	19:44	27	18:50 (12)	18:20	38	17:28 (11)	16:06		15:29					
14	04:36		20:00 (4)	05:36		20:00 (4)	06:42		18:22 (12)	07:47		16:50 (11)	07:57		08:52					
	22:07	22	20:22 (4)	21:05	21	20:21 (4)	19:41	29	18:51 (12)	18:18	37	17:27 (11)	16:04		15:29					
15	04:37		20:00 (4)	05:38		20:02 (4)	06:44		18:22 (12)	07:49		16:51 (11)	07:59		08:53					
	22:06	24	20:24 (4)	21:02	16	20:18 (4)	19:38	28	18:50 (12)	18:15	34	17:25 (11)	16:02		15:29					
16	04:39		19:59 (4)	05:41		20:05 (4)	06:46		18:21 (12)	07:51		16:52 (11)	08:02		08:54					
	22:05	25	20:24 (4)	21:00	10	20:15 (4)	19:35	30	18:51 (13)	18:12	33	17:25 (11)	16:00		15:29					
17	04:41		19:59 (4)	05:43			06:48		18:20 (12)	07:53		16:53 (11)	08:04		08:55					
	22:03	26	20:25 (4)	20:57			19:33	31	18:51 (13)	18:10	30	17:23 (11)	15:58		15:29					
18	04:42		19:58 (4)	05:45			06:51		18:20 (12)	07:55		16:54 (11)	08:06		08:56					
	22:01	28	20:26 (4)	20:54			19:30	31	18:51 (13)	18:07	28	17:22 (11)	15:56		15:29					
19	04:44		19:57 (4)	05:47		19:41 (14)	06:53		18:20 (12)	07:58		16:56 (11)	08:08		08:57					
	22:00	30	20:27 (4)	20:52	6	19:47 (14)	19:27	31	18:51 (13)	18:04	24	17:20 (11)	15:54		15:29					
20	04:46		19:57 (4)	05:49		19:38 (14)	06:55		18:20 (12)	08:00		16:57 (11)	08:10		08:58					
	21:58	31	20:28 (4)	20:49	12	19:50 (14)	19:24	30	18:50 (13)	18:02	20	17:17 (11)	15:53		15:29					
21	04:48		19:56 (4)	05:51		19:35 (14)	06:57		18:20 (12)	08:02		17:01 (11)	08:13		08:58					
	21:57	32	20:28 (4)	20:47	16	19:51 (14)	19:21	30	18:50 (13)	17:59	13	17:14 (11)	15:51		15:30					
22	04:49		19:56 (4)	05:53		19:34 (14)	06:59		18:22 (12)	08:04			08:15		08:59					
	21:55	33	20:29 (4)	20:44	18	19:52 (14)	19:18	26	18:48 (13)	17:57			15:49		15:30					
23	04:51		19:55 (4)	05:55		19:33 (14)	07:01		18:23 (12)	08:07			08:17		08:59					
	21:53	34	20:29 (4)	20:41	20	19:53 (14)	19:16	22	18:45 (13)	17:54			15:48		15:31					
24	04:53		19:55 (4)	05:58		19:32 (14)	07:03		18:24 (12)	08:09			08:19		09:00					
	21:51	34	20:29 (4)	20:39	21	19:53 (14)	19:13	18	18:42 (12)	17:51			15:46		15:31					
25	04:55		19:55 (4)	06:00		19:31 (14)	07:05		18:26 (12)	07:11			08:21		09:00					
	21:49	35	20:30 (4)	20:36	22	19:53 (14)	19:10	13	18:39 (12)	16:49			15:45		15:32					
26	04:57		19:55 (4)	06:02		19:30 (14)	07:08		17:10 (11)	07:14			08:23		09:00					
	21:47	36	20:31 (4)	20:33	23	19:53 (14)	19:07	12	18:36 (13)	16:46			15:43		15:33					
27	04:59		19:54 (4)	06:04		19:30 (14)	07:10		17:05 (11)	07:16			08:25		09:00					
	21:45	36	20:30 (4)	20:31	23	19:53 (14)	19:04	19	17:24 (11)	16:44			15:42		15:34					
28	05:01		19:54 (4)	06:06		19:30 (14)	07:12		17:02 (11)	07:18			08:27		09:01					
	21:43	37	20:31 (4)	20:28	23	19:53 (14)	19:02	23	17:25 (11)	16:41			15:41		15:35					
29	05:03		19:54 (4)	06:08		19:30 (14)	07:14		16:59 (11)	07:20			08:29		09:01					
	21:41	37	20:31 (4)	20:25	22	19:52 (14)	18:59	28	17:27 (11)	16:39			15:39		15:36					
30	05:05		19:54 (4)	06:10		19:30 (14)	07:16		16:58 (11)	07:23			08:31		09:01					
	21:39	37	20:31 (4)	20:23	20	19:50 (14)	18:56	31	17:29 (11)	16:37			15:38		15:37					
31	05:07		19:54 (4)	06:13		19:30 (14)				07:25					09:00					
	21:37	37	20:31 (4)	20:20	18	19:48 (14)				16:34					15:38					
Potential sun hours	538			474			386			321			241		207					
Total, worst case		731			728		592			716										
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	344			367			274			203										

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Vež i - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (784)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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	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	20:07	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
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	15:31
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	08:02	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
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	22:11	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	08:52
	15:59	17:09	18:13	20:22	21:28	22:17	22:09	21:08	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	18:16	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	22:07	21:03	19:39	18:15	16:02	15:29
16	08:49	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	08:07	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	06:22	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	21:53	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	09:01
	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	04:19	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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163

SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Baiba / baiba.ozolina@environment.lv
Calculated:
16/01/2026 15:04/4.1.254

Calculation: Flickering_Valke_Nordex163 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) []
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	14:33 (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	20 14:53 (4)	16:40	17:46	19:55	21:01	22:02	22:20	21:35	20:17	18:53	16:32	5 15:51 (2)
2	09:00	14:33 (4)	08:19	07:11	06:45	05:25	04:25	04:21	05:11	06:17	07:20	07:30	08:35
	15:41	21 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
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	08:36
	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	15:35
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	08:38
	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	15:34
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
	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
6	08:58	14:35 (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	22 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
7	08:57	14:35 (4)	08:08	06:57	06:31	05:13	04:20	04:26	05:21	06:27	07:31	07:41	08:43
	15:48	23 14:58 (4)	16:54	17:59	20:08	21:14	22:11	22:16	21:22	20:01	18:37	16:18	15:32
8	08:57	14:35 (4)	08:06	06:54	06:28	05:11	04:19	04:27	05:23	06:29	07:33	07:43	08:44
	15:49	23 14:58 (4)	16:56	18:02	20:10	21:16	22:12	22:15	21:19	19:58	18:34	16:16	15:31
9	08:56	14:36 (4)	08:03	06:52	06:25	05:09	04:18	04:28	05:26	06:32	07:36	07:46	08:46
	15:51	23 14:59 (4)	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	14:36 (4)	08:01	6 16:21 (2)	06:49	06:23	05:06	04:18	04:30	05:28	06:34	07:38	07:48
	15:53	24 15:00 (4)	17:01	16:27 (2)	18:06	20:15	21:21	22:14	22:12	21:14	19:52	18:28	16:12
11	08:54	14:36 (4)	07:59	16:19 (2)	06:46	06:20	05:04	04:17	04:31	05:30	06:36	07:40	07:50
	15:55	24 15:00 (4)	17:03	11 16:30 (2)	18:08	20:17	21:23	22:15	22:11	21:12	19:49	18:26	16:10
12	08:53	14:37 (4)	07:56	16:17 (2)	06:43	06:17	05:02	04:17	04:33	05:32	06:38	07:42	07:53
	15:57	23 15:00 (4)	17:06	15 16:32 (2)	18:11	20:19	21:25	22:16	22:10	21:10	19:47	18:23	16:07
13	08:52	14:37 (4)	07:54	16:17 (2)	06:41	06:15	05:00	04:16	04:30	05:29	06:35	07:39	07:55
	15:58	23 15:00 (4)	17:08	18 16:35 (2)	18:13	20:21	21:27	22:17	22:09	21:07	19:44	18:20	16:05
14	08:51	14:38 (4)	07:52	18 16:15 (2)	06:38	06:12	04:58	04:16	04:36	05:36	06:42	07:47	07:57
	16:00	23 15:01 (4)	17:11	23 16:38 (2)	18:15	20:24	21:29	22:18	22:08	21:05	19:4		

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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
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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
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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
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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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zala iela 12 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (650)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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
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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zala iela 3B - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (670)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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	08:35 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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	04:52 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
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Total, worst case												
Sun reduction												
Oper. time red.												
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 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
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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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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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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
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Total, worst case												
Sun reduction												
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Table layout: For each day in each month the following matrix apply

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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
0.80	1.82	4.75	6.09	9.67	10.05	8.16	7.72	5.94	2.93	0.63	0.41

No operational time reduction. It is assumed 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 17:37
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	03:21 22:19	02:16 21:33	01:11 20:14	00:06 18:50	00:01 17:38
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 17:39
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	03:22 22:18	02:17 21:28	01:12 20:09	00:07 18:45	00:02 17:40
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	03:22 22:17	02:17 21:26	01:12 20:06	00:07 18:42	00:02 17:41
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	03:21 22:16	02:16 21:24	01:11 20:03	00:06 18:39	00:01 17:42
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	03:21 22:16	02:16 21:22	01:11 20:01	00:06 18:37	00:01 17:43
8	08:57 15:49	08:06 16:56	3	06:54 16:22 (2)	06:28 18:02	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 17:44
9	08:56 15:51	08:03 16:59	8	06:52 16:25 (2)	06:25 18:04	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 17:45
10	08:55 15:53	08:01 17:01	11	06:49 16:27 (2)	06:23 18:06	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 17:46
11	08:54 15:55	07:59 17:03	15	06:46 16:30 (2)	06:20 18:08	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 17:47
12	08:53 15:57	07:56 17:06	18	06:43 16:32 (2)	06:17 18:11	05:02 21:25	04:17 22:16	03:20 22:10	02:15 21:10	01:08 19:47	00:04 18:23	00:00 17:48
13	08:52 15:58	07:54 17:08	21	06:41 16:35 (2)	06:14 18:13	05:00 21:27	04:16 22:17	03:20 22:09	02:15 21:07	01:07 19:44	00:04 18:20	00:00 17:49
14	08:51 16:00	07:52 17:11	24	06:38 16:37 (2)	06:12 18:15	04:58 21:29	04:16 22:18	03:20 22:08	02:15 21:05	01:06 19:41	00:04 18:18	00:00 17:50
15	08:49 16:02	07:49 17:13	25	06:35 16:37 (2)	06:09 18:17	04:56 21:31	04:15 22:18	03:20 22:06	02:15 21:02	01:05 19:38	00:04 18:15	00:00 17:51
16	08:48 16:04	07:47 17:15	24	06:32 16:37 (2)	06:06 18:20	04:53 21:33	04:15 22:19	03:20 22:05	02:15 21:00	01:04 19:35	00:04 18:12	00:00 17:52
17	08:47 16:06	07:44 17:18	25	06:29 16:37 (2)	06:04 18:22	04:51 21:35	04:15 22:20	03:20 22:03	02:15 20:57	01:03 19:33	00:04 18:10	00:00 17:53
18	08:45 16:08	07:42 17:20	24	06:27 16:37 (2)	06:01 18:24	04:50 21:37	04:15 22:20	03:20 22:02	02:15 20:54	01:02 19:30	00:04 18:07	00:00 17:54
19	08:44 16:10	07:39 17:22	24	06:24 16:37 (2)	05:58 18:26	04:48 21:39	04:15 22:21	03:20 22:00	02:15 20:52	01:01 19:27	00:04 18:04	00:00 17:55
20	08:42 16:13	07:37 17:25	23	06:21 16:36 (2)	05:56 18:28	04:46 21:41	04:15 22:21	03:20 21:58	02:15 20:49	01:00 19:24	00:04 18:02	00:00 17:56
21	08:41 16:15	07:34 17:27	20	06:18 16:34 (2)	05:53 18:31	04:44 21:43	04:15 22:21	03:20 21:57	02:15 20:47	01:00 19:21	00:04 17:59	00:00 17:57
22	08:39 16:17	07:32 17:29	19	06:16 16:34 (2)	05:50 18:33	04:42 21:45	04:15 22:21	03:20 21:55	02:15 20:44	01:00 19:18	00:04 17:56	00:00 17:58
23	08:38 16:19	07:29 17:32	15	06:13 16:32 (2)	05:48 18:35	04:40 21:47	04:15 22:22	03:20 21:53	02:15 20:41	01:00 19:16	00:04 17:54	00:00 17:59
24	08:36 16:21	07:26 17:34	10	06:10 16:29 (2)	05:45 18:37	04:39 21:49	04:15 22:22	03:20 21:51	02:15 20:39	01:00 19:13	00:04 17:51	00:00 17:59
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	03:20 21:49	02:15 20:36	01:00 19:10	00:04 16:49	00:00 17:59
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	03:20 21:47	02:15 20:33	01:00 19:07	00:04 16:46	00:00 17:59
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	03:20 21:45	02:15 20:31	01:00 19:04	00:04 16:44	00:00 17:59
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	03:20 21:43	02:15 20:28	01:00 19:02	00:04 16:41	00:00 17:59
29	08:27 16:33			05:56 19:48	05:32 20:57	04:31 21:58	04:18 22:21	03:20 21:41	02:15 20:25	01:00 18:59	00:04 16:39	00:00 17:59
30	08:25 16:35			05:53 19:50	05:30 20:59	04:29 21:59	04:19 22:20	03:20 21:39	02:15 20:23	01:00 18:56	00:04 16:37	00:00 17:59
31	08:23 16:37			05:50 19:53		04:28 22:01		03:20 21:37	02:15 20:20	01:00 18:56	00:04 16:34	00:00 17:59
Potential sun hours	227	262		365	429	515	539	538	474	386	321	241
Total, worst case		309									297	20
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		60									84	2

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	08:21 16:40	15:58 (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	07:27 16:32
2	09:00 15:41	08:19 16:42	15:56 (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	07:30 16:29
3	09:00 15:42	08:17 16:44	15:55 (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	07:32 16:27
4	08:59 15:43	08:15 16:47	15:54 (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	07:34 16:25
5	08:59 15:45	08:12 16:49	15:53 (2) 16:14 (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	07:37 16:23
6	08:58 15:46	08:10 16:52	15:52 (2) 16:16 (2)	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
7	08:57 15:48	08:08 16:54	15:52 (2) 16:17 (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	07:41 16:18
8	08:57 15:49	08:06 16:56	15:51 (2) 16:17 (2)	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	07:44 16:16
9	08:56 15:51	08:03 16:59	15:52 (2) 16:18 (2)	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
10	08:55 15:53	08:01 17:01	15:51 (2) 16:18 (2)	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14	04:30 22:13	05:28 21:14	06:34 19:52	07:38 18:28	07:48 16:12
11	08:54 15:55	07:59 17:03	15:52 (2) 16:18 (2)	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
12	08:53 15:57	07:56 17:06	15:51 (2) 16:18 (2)	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
13	08:52 15:58	07:54 17:08	15:52 (2) 16:18 (2)	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
14	08:51 16:00	07:52 17:11	15:52 (2) 16:17 (2)	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
15	08:49 16:02	07:49 17:13	15:53 (2) 16:16 (2)	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
16	08:48 16:04	07:47 17:15	15:54 (2) 16:16 (2)	06:32 18:20	06:06 20:28	04:54 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
17	08:47 16:06	07:44 17:18	15:55 (2) 16:15 (2)	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	08:04 15:58
18	08:45 16:08	07:42 17:20	15:57 (2) 16:14 (2)	06:27 18:24	06:01 20:32	04:50 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
19	08:44 16:10	07:39 17:22	15:59 (2) 16:11 (2)	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	08:08 15:54
20	08:42 16:13	07:37 17:25	16:03 (2) 16:06 (2)	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
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
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 17:57	08:15 15:49
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	08:17 15:48
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	08:19 15:46
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
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	08:23 15:43
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
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
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
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
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	08:31 15:38
Potential sun hours	227	262	365	429	515	539	538	474	386	321	241	207
Total, worst case		396								211	195	
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		77								60	15	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	18:09	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	07:44	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	17:30	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	16:41	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		21:38	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales 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
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	04:41 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 22:22	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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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 22:09	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	04:41 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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales 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 21:19	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
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 17:37	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	07:35	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
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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
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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	21:29	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
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	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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	16:08	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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	16:11	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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	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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	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
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	15:35
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	04:40 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 17:37	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	07:35	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	05:24	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	16:06	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	04:41	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	04:47	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
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	15:35
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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		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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 16:10	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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 17:52	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		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 15:35
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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	07:35	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	05:24	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	16:06	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	04:41	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	07:40	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	04:47	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	17:52	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	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	15:35
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales 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	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
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	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
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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
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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
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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
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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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	16:04	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	22:03	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	07:39	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
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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
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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	17:51	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
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	16:30	17:43	18:46	20:55	21:56	22:21	21:44	20:28	19:02	16:42	15:41	15:35
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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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	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales 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
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	07:39 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
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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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgailes 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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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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 3 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (540)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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 21:37	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 21:45	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
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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 31 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (678)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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
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 16:10	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		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 15:35
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	06:11 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 34 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (717)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 36 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (702)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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	07:35	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	05:24	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	16:06	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	22:03	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	17:52	15:46	15:31
25	08:35	07:24	06:07	05:43	04:37	04:16	04:55	06:00	07:06	07:11	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	15:35
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales 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
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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
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
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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

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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales 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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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 15:34
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 58 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (672)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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
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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 6 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (512)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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
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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 16:10	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
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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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 60 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (671) 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	07:14 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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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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 6A - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (561)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 7 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (539)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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 15:35
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Zemgales iela 8 - Shadow Receptor: 1.0 × 1.0 Azimuth: 3.1° Slope: 90.0° (555)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

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

No operational time reduction. It is assumed the 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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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	08:40 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 18:37	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	04:19 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	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	17:40 (4) 6 17:46 (4)	06:12 20:23	04:58 21:29	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	17:38 (4) 10 17:48 (4)	06:09 20:26	04:56 21:31	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	17:36 (4) 14 17:50 (4)	06:06 20:28	04:54 21:33	04:39 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 17:53 (4)	06:04 20:30	04:51 21:35	04:41 22:19	05:43 22:03	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	17:35 (4) 20 17:55 (4)	06:01 20:32	04:50 21:37	04:42 22:20	05:45 22:01	06:51 19:30	18:25 (4) 11 18:36 (4)	07:55 18:07	08:06 15:56
19	08:44 16:10	07:39 17:22	06:24 18:26	17:34 (4) 22 17:56 (4)	05:58 20:35	04:48 21:39	04:44 22:20	05:47 22:00	06:53 19:27	18:23 (4) 15 18:38 (4)	07:58 18:04	08:08 15:54
20	08:42 16:13	07:37 17:25	06:21 18:28	17:34 (4) 21 17:55 (4)	05:56 20:37	04:46 21:41	04:46 22:21	05:49 21:58	06:54 19:24	18:21 (4) 17 18:38 (4)	08:00 18:02	08:10 15:53
21	08:41 16:15	07:34 17:27	06:18 18:31	17:34 (4) 20 17:54 (4)	05:53 20:39	04:44 21:43	04:48 22:21	05:51 21:57	06:57 19:21	18:20 (4) 19 18:39 (4)	08:02 17:59	08:13 15:51
22	08:39 16:17	07:32 17:29	06:15 18:33	17:34 (4) 19 17:53 (4)	05:50 20:41	04:42 21:45	04:49 22:21	05:53 21:55	06:59 19:18	18:19 (4) 20 18:39 (4)	08:04 17:56	08:15 15:49
23	08:38 16:19	07:29 17:32	06:13 18:35	17:35 (4) 18 17:53 (4)	05:48 20:43	04:40 21:47	04:15 22:21	05:55 21:53	07:01 20:41	18:19 (4) 21 18:40 (4)	08:07 17:54	08:17 15:48
24	08:36 16:21	07:26 17:34	06:10 18:37	17:36 (4) 15 17:51 (4)	05:45 20:46	04:39 21:49	04:15 22:21	05:58 21:51	07:03 19:39	18:18 (4) 21 18:39 (4)	08:09 17:51	08:19 15:46
25	08:34 16:24	07:24 17:36	06:07 18:39	17:37 (4) 12 17:49 (4)	05:43 20:48	04:37 21:51	04:16 22:21	05:55 21:49	07:05 20:36	18:18 (4) 21 18:39 (4)	07:11 16:49	08:21 15:45
26	08:32 16:26	07:21 17:39	06:04 18:42	17:40 (4) 5 17:45 (4)	05:40 20:50	04:35 21:52	04:16 22:21	06:02 21:47	07:07 19:07	18:18 (4) 18 18:36 (4)	07:13 16:46	08:23 15:43
27	08:31 16:28	07:19 17:41	06:01 18:44	05:37 20:52	05:35 21:54	04:34 22:21	04:17 21:45	06:04 21:41	07:10 19:04	18:18 (4) 15 18:33 (4)	07:16 16:44	08:25 15:42
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	04:32 21:56	04:32 22:21	04:17 21:43	06:06 21:43	07:12 20:28	18:19 (4) 11 18:30 (4)	07:18 16:41	08:27 15:41
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	18:20 (4) 7 18:27 (4)	07:20 16:39	08:29 15:39
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	18:22 (4) 3 18:25 (4)	07:23 16:37	08:31 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			199						199			
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			80						92			

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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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.

	January			February			March			April	May	June
1	09:00		14:51 (4)	08:21		07:13		16:31 (2)	06:48	05:27	04:27	
	15:39	2	14:53 (4)	16:40		17:46	18	16:49 (2)	19:55	21:01	22:02	
2	09:00		14:51 (4)	08:19		07:11		16:32 (2)	06:45	05:25	04:25	
	15:41	3	14:54 (4)	16:42		17:48	15	16:47 (2)	19:57	21:03	22:04	
3	09:00		14:51 (4)	08:17		07:08		16:35 (2)	06:42	05:23	04:24	
	15:42	5	14:56 (4)	16:44		17:50	8	16:43 (2)	19:59	21:06	22:05	
4	08:59		14:51 (4)	08:15		07:05			06:39	05:20	04:23	
	15:43	7	14:58 (4)	16:47		17:53			20:01	21:08	22:07	
5	08:59		14:51 (4)	08:12		07:03			06:36	05:18	04:22	
	15:45	8	14:59 (4)	16:49		17:55			20:04	21:10	22:08	
6	08:58		14:51 (4)	08:10		07:00			06:34	05:15	04:21	
	15:46	10	15:01 (4)	16:52		17:57			20:06	21:12	22:09	
7	08:57		14:51 (4)	08:08		06:57			06:31	05:13	04:20	
	15:48	12	15:03 (4)	16:54		17:59			20:08	21:14	22:11	
8	08:57		14:51 (4)	08:06		06:54			06:28	05:11	04:19	
	15:49	14	15:05 (4)	16:56		18:02			20:10	21:16	22:12	
9	08:56		14:51 (4)	08:03		06:52			06:25	05:09	04:18	
	15:51	16	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		14:51 (4)	07:59		06:46			06:20	05:04	04:17	
	15:55	20	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		14:51 (4)	07:54		06:41			06:14	05:00	04:16	
	15:58	22	15:13 (4)	17:08		18:13			20:21	21:27	22:17	
14	08:51		14:52 (4)	07:52		06:38			06:12	04:58	04:16	
	16:00	22	15:14 (4)	17:11		18:15			20:24	21:29	22:18	
15	08:49		14:52 (4)	07:49		16:34 (2)	6	06:35	06:09	04:56	04:15	
	16:02	22	15:14 (4)	17:13	6	16:40 (2)	18:17		20:26	21:31	22:18	
16	08:48		14:52 (4)	07:47		16:33 (2)	06:32		06:06	04:53	04:15	
	16:04	24	15:16 (4)	17:15	10	16:43 (2)	18:20		20:28	21:33	22:19	
17	08:47		14:52 (4)	07:44		16:31 (2)	06:29		06:04	04:51	04:15	
	16:06	24	15:16 (4)	17:18	14	16:45 (2)	18:22		20:30	21:35	22:20	
18	08:45		14:53 (4)	07:42		16:30 (2)	06:27		06:01	04:50	04:15	
	16:08	23	15:16 (4)	17:20	18	16:48 (2)	18:24		20:32	21:37	22:20	
19	08:44		14:53 (4)	07:39		16:29 (2)	06:24		05:58	04:48	04:15	
	16:10	23	15:16 (4)	17:22	22	16:51 (2)	18:26		20:35	21:39	22:21	
20	08:42		14:54 (4)	07:37		16:28 (2)	06:21		05:56	04:46	04:15	
	16:13	23	15:17 (4)	17:25	24	16:52 (2)	18:28		20:37	21:41	22:21	
21	08:41		14:55 (4)	07:34		16:27 (2)	06:18		05:53	04:44	04:15	
	16:15	22	15:17 (4)	17:27	25	16:52 (2)	18:31		20:39	21:43	22:21	
22	08:39		14:55 (4)	07:32		16:28 (2)	06:16		05:50	04:42	04:15	
	16:17	21	15:16 (4)	17:29	25	16:53 (2)	18:33		20:41	21:45	22:21	
23	08:38		14:56 (4)	07:29		16:27 (2)	06:13		05:48	04:40	04:15	
	16:19	20	15:16 (4)	17:32	26	16:53 (2)	18:35		20:43	21:47	22:22	
24	08:36		14:57 (4)	07:26		16:27 (2)	06:10		05:45	04:39	04:15	
	16:21	19	15:16 (4)	17:34	26	16:53 (2)	18:37		20:46	21:49	22:22	
25	08:34		14:58 (4)	07:24		16:28 (2)	06:07		05:43	04:37	04:16	
	16:24	17	15:15 (4)	17:36	25	16:53 (2)	18:39		20:48	21:51	22:22	
26	08:32		14:59 (4)	07:21		16:28 (2)	06:04		05:40	04:35	04:16	
	16:26	16	15:15 (4)	17:39	24	16:52 (2)	18:42		20:50	21:53	22:21	
27	08:31		15:00 (4)	07:19		16:28 (2)	06:02		05:37	04:34	04:17	
	16:28	13	15:13 (4)	17:41	23	16:51 (2)	18:44		20:52	21:54	22:21	
28	08:29		15:03 (4)	07:16		16:29 (2)	05:59		05:35	04:32	04:17	
	16:30	8	15:11 (4)	17:43	21	16:50 (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		456		289		41						
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		50		56		17						

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163 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
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	17:07 (2) 17:19 (2)	07:50 16:10
12	04:33 22:10	05:32 21:10	06:38 19:47	07:42 18:23	17:05 (2) 17:21 (2)	07:53 16:07
13	04:34 22:09	05:34 21:07	06:40 19:44	07:44 18:20	17:03 (2) 17:22 (2)	07:55 16:05
14	04:36 22:08	05:36 21:05	06:42 19:41	07:47 18:18	17:01 (2) 17:23 (2)	07:57 16:03
15	04:37 22:06	05:38 21:02	06:44 19:38	07:49 18:15	17:00 (2) 17:23 (2)	07:59 16:02
16	04:39 22:05	05:40 21:00	06:46 19:35	07:51 18:12	17:00 (2) 17:24 (2)	08:02 16:00
17	04:40 22:03	05:43 20:57	06:48 19:33	07:53 18:10	16:59 (2) 17:24 (2)	08:04 15:58
18	04:42 22:02	05:45 20:54	06:51 19:30	07:55 18:07	16:59 (2) 17:25 (2)	08:06 15:56
19	04:44 22:00	05:47 20:52	06:53 19:27	07:58 18:04	16:58 (2) 17:24 (2)	08:08 15:54
20	04:46 21:58	05:49 20:49	06:55 19:24	08:00 18:02	16:58 (2) 17:23 (2)	08:10 15:52
21	04:47 21:57	05:51 20:47	06:57 19:21	08:02 17:59	16:59 (2) 17:24 (2)	08:13 15:51
22	04:49 21:55	05:53 20:44	06:59 19:18	08:04 17:57	16:58 (2) 17:22 (2)	08:15 15:49
23	04:51 21:53	05:55 20:41	07:01 19:16	08:07 17:54	17:00 (2) 17:20 (2)	08:17 15:48
24	04:53 21:51	05:58 20:39	07:03 19:13	08:09 17:51	17:00 (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	16:02 (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	16:03 (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	16:05 (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	08:27 15:41	14:32 (4) 14:54 (4)
29	05:03 21:41	06:08 20:25	07:14 18:59	07:20 16:39	08:29 15:39	14:32 (4) 14:54 (4)
30	05:05 21:39	06:10 20:23	07:16 18:56	07:23 16:37	08:31 15:38	14:33 (4) 14:54 (4)
31	05:07 21:37	06:13 20:20	07:25 16:34	07:25 16:34		09:00 15:38
Potential sun hours	538	474	386	321	241	207
Total, worst case				331	339	116
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				94	27	7

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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 15:39	08:21 16:40	07:13 17:46	06:48 19:55	05:28 21:01	19:53 (4) 20:14 (4)
2	09:00 15:41	08:19 16:42	07:11 17:48	06:45 19:57	05:25 21:03	19:53 (4) 20:13 (4)
3	08:59 15:42	08:17 16:44	07:08 17:50	06:42 19:59	05:23 21:05	19:54 (4) 20:13 (4)
4	08:59 15:43	08:14 16:47	07:05 17:53	06:39 20:01	05:20 21:08	19:55 (4) 20:12 (4)
5	08:58 15:45	08:12 16:49	07:02 17:55	06:36 20:04	05:18 21:10	19:57 (4) 20:11 (4)
6	08:58 15:46	08:10 16:52	07:00 17:57	06:34 20:06	05:16 21:12	19:58 (4) 20:08 (4)
7	08:57 15:48	08:08 16:54	06:57 17:59	06:31 20:08	05:13 21:14	20:02 (4) 20:04 (4)
8	08:56 15:50	08:06 16:56	06:54 18:02	06:28 20:10	05:11 21:16	04:19 22:12
9	08:56 15:51	08:03 16:59	06:52 18:04	06:25 20:12	05:09 21:18	04:19 22:13
10	08:55 15:53	08:01 17:01	06:49 18:06	06:23 20:15	05:06 21:21	04:18 22:14
11	08:54 15:55	07:59 17:03	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	17:36 (11) 17:42 (11)	06:17 20:19	04:17 22:16
13	08:52 15:58	07:54 17:08	06:41 18:13	17:33 (11) 17:44 (11)	06:14 20:21	04:16 22:17
14	08:50 16:00	07:52 17:11	06:38 18:15	17:30 (11) 17:46 (11)	06:12 20:23	04:16 22:17
15	08:49 16:02	07:49 17:13	06:35 18:17	17:29 (11) 17:48 (11)	06:09 20:26	04:15 22:18
16	08:48 16:04	07:47 17:15	06:32 18:20	17:27 (11) 17:50 (11)	06:06 20:28	04:15 22:19
17	08:47 16:06	07:44 17:18	06:29 18:22	17:27 (11) 17:52 (11)	06:04 20:30	04:15 22:19
18	08:45 16:08	07:42 17:20	06:27 18:24	17:27 (11) 17:52 (11)	06:01 20:32	04:15 22:20
19	08:44 16:11	07:39 17:22	06:24 18:26	17:26 (11) 17:51 (11)	05:58 20:35	04:15 22:20
20	08:42 16:13	07:37 17:25	06:21 18:28	17:25 (11) 17:51 (11)	05:56 20:37	04:15 22:21
21	08:41 16:15	07:34 17:27	06:18 18:31	17:25 (11) 17:50 (11)	05:53 20:39	04:14 22:21
22	08:39 16:17	07:32 17:29	06:15 18:33	17:25 (11) 17:49 (11)	05:50 20:41	04:42 22:21
23	08:38 16:19	07:29 17:32	06:13 18:35	17:26 (11) 17:49 (11)	05:48 20:43	04:40 22:21
24	08:36 16:21	07:26 17:34	06:10 18:37	17:27 (11) 17:47 (11)	05:45 20:46	04:39 22:21
25	08:34 16:24	07:24 17:36	06:07 18:39	17:28 (11) 17:46 (11)	05:43 20:48	04:37 22:21
26	08:32 16:26	07:21 17:39	06:04 18:42	17:29 (11) 17:43 (11)	05:40 20:50	04:35 22:21
27	08:30 16:28	07:19 17:41	06:01 18:44	17:32 (11) 17:39 (11)	05:37 20:52	04:34 22:21
28	08:29 16:30	07:16 17:43	05:59 18:46	05:35 20:54	19:52 (4) 20:15 (4)	04:32 21:56
29	08:27 16:33		06:56 19:48	05:32 20:57	19:53 (4) 20:15 (4)	04:31 21:58
30	08:25 16:35		06:53 19:50	05:30 20:59	19:53 (4) 20:15 (4)	04:29 21:59
31	08:23 16:37		06:50 19:53		04:28 22:01	04:28 22:20
Potential sun hours	227	262	365	429	515	539
Total, worst case			307	194	103	
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			124	83	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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Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	05:09	06:15	07:18	18:13 (11)	07:27
	22:20	21:35	20:17	18:53	9 18:22 (11)	16:32
2	04:21	05:11	06:17	07:20	18:17 (11)	07:30
	22:19	21:33	20:14	18:50	2 18:19 (11)	16:29
3	04:22	05:13	06:19	07:22		07:32
	22:19	21:31	20:12	18:48		16:27
4	04:23	05:15	06:21	07:25		07:34
	22:18	21:28	20:09	18:45		16:25
5	04:24	05:17	06:23	07:27		07:36
	22:17	21:26	20:06	18:42		16:23
6	04:25	05:19	20:10 (4)	07:29		16:39
	22:16	21:24	6 20:16 (4)	18:39		16:20
7	04:26	05:21	20:07 (4)	07:31		07:41
	22:15	21:21	12 20:19 (4)	18:37		16:18
8	04:27	05:23	20:06 (4)	07:33		07:43
	22:14	21:19	15 20:21 (4)	18:34		16:16
9	04:29	05:26	20:04 (4)	07:35		07:46
	22:13	21:17	18 20:22 (4)	18:31		16:14
10	04:30	05:28	20:03 (4)	07:38		07:48
	22:12	21:14	19 20:22 (4)	18:28		16:12
11	04:31	05:30	20:03 (4)	07:40		07:50
	22:11	21:12	20 20:23 (4)	18:26		16:10
12	04:33	05:32	20:01 (4)	07:42		07:53
	22:10	21:09	21 20:22 (4)	18:23		16:08
13	04:34	05:34	20:00 (4)	07:44		07:55
	22:09	21:07	23 20:23 (4)	18:20		16:05
14	04:36	05:36	20:00 (4)	07:46		07:57
	22:07	21:05	23 20:23 (4)	18:18		16:04
15	04:37	05:38	20:00 (4)	07:49		07:59
	22:06	21:02	23 20:23 (4)	18:15		16:02
16	04:39	05:41	20:00 (4)	18:23 (11)		08:02
	22:04	20:59	22 20:22 (4)	4 18:27 (11)		16:00
17	04:41	05:43	20:00 (4)	18:18 (11)		08:04
	22:03	20:57	22 20:22 (4)	13 18:31 (11)		15:58
18	04:42	05:45	20:00 (4)	18:16 (11)		08:06
	22:01	20:54	21 20:21 (4)	17 18:33 (11)		15:56
19	04:44	05:47	20:00 (4)	18:14 (11)		08:08
	22:00	20:52	19 20:19 (4)	20 18:34 (11)		15:54
20	04:46	05:49	20:01 (4)	18:12 (11)		08:10
	21:58	20:49	15 20:16 (4)	22 18:34 (11)		15:53
21	04:48	05:51	20:02 (4)	18:11 (11)		08:12
	21:56	20:47	12 20:14 (4)	24 18:35 (11)		15:51
22	04:49	05:53	20:03 (4)	18:10 (11)		08:15
	21:55	20:44	8 20:11 (4)	25 18:35 (11)		15:49
23	04:51	05:55	20:05 (4)	18:10 (11)		08:17
	21:53	20:41	4 20:09 (4)	25 18:35 (11)		15:48
24	04:53	05:58		18:10 (11)		08:19
	21:51	20:39		25 18:35 (11)		15:46
25	04:55	06:00		18:09 (11)		08:21
	21:49	20:36		25 18:34 (11)		15:45
26	04:57	06:02		18:09 (11)		08:23
	21:47	20:33		25 18:34 (11)		15:43
27	04:59	06:04		18:09 (11)		08:25
	21:45	20:31		24 18:33 (11)		15:42
28	05:01	06:06		18:09 (11)		08:27
	21:43	20:28		21 18:30 (11)		15:41
29	05:03	06:08		18:10 (11)		08:29
	21:41	20:25		17 18:27 (11)		15:39
30	05:05	06:10		18:12 (11)		08:31
	21:39	20:23		13 18:25 (11)		15:38
31	05:07	06:13				09:00
	21:37	20:20				15:38
Potential sun hours	538	474	386	321	241	207
Total, worst case		303	300	11		
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		153	139	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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SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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
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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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163 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
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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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	08:15 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
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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
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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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163 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
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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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
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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	07:19 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)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163 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
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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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
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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
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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 22:01	05:45 20:54	06:51 19:30	07:55 18:07	08:06 15:56	08:56 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
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
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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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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		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		

Project:

Flickering_Valka_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	09:27 (7)	07:14	07:44 (8)	06:48	07:19 (9)	05:28	06:20 (5)	04:27	
	15:40		16:40	35 10:02 (7)	17:46	19 08:03 (8)	19:55	60 08:37 (6)	21:01	24 06:44 (5)	22:03	
2	09:00		08:19	09:27 (7)	07:11	07:42 (8)	06:45	07:18 (9)	05:25	06:21 (5)	04:26	
	15:41		16:42	36 10:03 (7)	17:48	22 08:04 (8)	19:57	58 08:36 (6)	21:04	22 06:43 (5)	22:04	
3	09:00		08:17	09:27 (7)	07:08	07:41 (8)	06:42	07:18 (9)	05:23	06:21 (5)	04:25	
	15:42		16:45	36 10:03 (7)	17:51	23 08:04 (8)	20:00	56 08:34 (6)	21:06	20 06:41 (5)	22:06	
4	08:59		08:15	09:27 (7)	07:06	07:39 (8)	06:39	07:19 (9)	05:21	06:22 (5)	04:23	
	15:44		16:47	36 10:03 (7)	17:53	26 08:05 (8)	20:02	54 08:34 (6)	21:08	18 06:40 (5)	22:07	
5	08:59		08:13	09:27 (7)	07:03	07:40 (8)	06:37	07:19 (9)	05:18	06:23 (5)	04:22	
	15:45		16:49	36 10:03 (7)	17:55	26 08:06 (8)	20:04	49 08:31 (6)	21:10	16 06:39 (5)	22:08	
6	08:58		08:10	09:28 (7)	07:00	07:39 (8)	06:34	07:19 (9)	05:16	06:26 (5)	04:21	
	15:47		16:52	36 10:04 (7)	17:57	27 08:06 (8)	20:06	44 08:29 (6)	21:12	11 06:37 (5)	22:10	
7	08:58		08:08	09:28 (7)	06:57	07:38 (8)	06:31	07:20 (9)	05:13	06:29 (5)	04:20	
	15:48		16:54	35 10:03 (7)	18:00	28 08:06 (8)	20:08	36 08:26 (6)	21:15	4 06:33 (5)	22:11	
8	08:57		08:06	09:29 (7)	06:55	07:38 (8)	06:28	07:22 (9)	05:11		04:20	
	15:50		16:57	34 10:03 (7)	18:02	27 08:05 (8)	20:11	27 08:23 (6)	21:17		22:12	
9	08:56		08:04	09:29 (7)	06:52	07:38 (8)	06:26	07:25 (9)	05:09		04:19	
	15:52		16:59	33 10:02 (7)	18:04	26 08:04 (8)	20:13	6 07:31 (9)	21:19		22:13	
10	08:55		08:01	09:30 (7)	06:49	07:39 (8)	06:23		05:07		04:18	
	15:53		17:01	32 10:02 (7)	18:06	26 08:05 (8)	20:15		21:21		22:14	
11	08:54		07:59	09:31 (7)	06:46	07:39 (8)	06:20		05:04		04:17	
	15:55		17:04	30 10:01 (7)	18:09	25 08:04 (8)	20:17		21:23		22:15	
12	08:53		07:57	09:31 (7)	06:44	07:39 (8)	06:17		05:02		04:17	
	15:57		17:06	28 09:59 (7)	18:11	23 08:02 (8)	20:19		21:25		22:16	
13	08:52		07:54	09:33 (7)	06:41	07:40 (8)	06:15		05:00		04:16	
	15:59		17:09	26 09:59 (7)	18:13	21 08:01 (8)	20:22		21:27		22:17	
14	08:51		07:52	09:34 (7)	06:38	07:41 (8)	06:12		04:58		04:16	
	16:01		17:11	23 09:57 (7)	18:15	17 07:58 (8)	20:24		21:29		22:18	
15	08:50		07:49	09:36 (7)	06:35	07:17 (6)	06:09		04:56		04:16	
	16:03		17:13	19 09:55 (7)	18:18	28 07:57 (8)	20:26		21:32		22:19	
16	08:48		07:47	09:39 (7)	06:33	07:14 (6)	06:07		04:54		04:15	
	16:05		17:16	13 09:52 (7)	18:20	23 07:51 (8)	20:28		21:34		22:19	
17	08:47		07:45		06:30	07:11 (6)	06:04	06:31 (5)	04:52		04:15	
	16:07		17:18		18:22	25 07:36 (6)	20:30	8 06:39 (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	6 09:45 (7)	17:20		18:24	29 07:38 (6)	20:33	13 06:41 (5)	21:38		22:20	
19	08:44		07:40		06:24	07:07 (6)	05:59	06:26 (5)	04:48		04:15	
	16:11	12 09:48 (7)	17:23		18:27	32 07:39 (6)	20:35	17 06:43 (5)	21:40		22:21	
20	08:43		07:37		06:21	07:05 (6)	05:56	06:23 (5)	04:46		04:15	
	16:13	16 09:50 (7)	17:25		18:29	34 07:39 (6)	20:37	21 06:44 (5)	21:42		22:21	
21	08:41		07:34		06:19	07:05 (6)	05:53	06:22 (5)	04:44		04:15	
	16:15	20 09:52 (7)	17:27		18:31	36 07:41 (6)	20:39	23 06:45 (5)	21:44		22:21	
22	08:40		07:32		06:16	07:04 (6)	05:51	06:21 (5)	04:42		04:15	
	16:17	23 09:54 (7)	17:30		18:33	37 07:41 (6)	20:42	24 06:45 (5)	21:45		22:22	
23	08:38		07:29		06:13	07:02 (6)	05:48	06:21 (5)	04:41		04:15	
	16:19	25 09:55 (7)	17:32		18:35	39 07:41 (6)	20:44	25 06:46 (5)	21:47		22:22	
24	08:36		07:27		06:10	07:02 (6)	05:45	06:19 (5)	04:39		04:16	
	16:22	26 09:56 (7)	17:34		18:38	39 07:41 (6)	20:46	27 06:46 (5)	21:49		22:22	
25	08:34		07:24		06:07	07:01 (6)	05:43	06:19 (5)	04:37		04:16	
	16:24	29 09:58 (7)	17:37		18:40	40 07:41 (6)	20:48	27 06:46 (5)	21:51		22:22	
26	08:33		07:22		06:05	06:31 (9)	05:40	06:19 (5)	04:36		04:17	
	16:26	30 09:59 (7)	17:39		18:42	47 07:41 (6)	20:50	27 06:46 (5)	21:53		22:22	
27	08:31		07:19		06:02	06:28 (9)	05:38	06:19 (5)	04:34		04:17	
	16:28	32 10:00 (7)	17:41	9 07:58 (8)	18:44	53 07:41 (6)	20:53	27 06:46 (5)	21:55		22:22	
28	08:29		07:16		05:59	06:25 (9)	05:35	06:19 (5)	04:32		04:18	
	16:31	33 10:01 (7)	17:44	15 08:01 (8)	18:46	56 07:40 (6)	20:55	27 06:46 (5)	21:56		22:21	
29	08:27				06:56	07:22 (9)	05:33	06:19 (5)	04:31		04:18	
	16:33	34 10:01 (7)			19:49	58 08:39 (6)	20:57	26 06:45 (5)	21:58		22:21	
30	08:25				06:53	07:20 (9)	05:30	06:19 (5)	04:30		04:19	
	16:35	35 10:02 (7)			19:51	61 08:39 (6)	20:59	25 06:44 (5)	22:00		22:21	
31	08:23				06:51	07:20 (9)			04:28			
	16:38	35 10:02 (7)			19:53	60 08:38 (6)			22:01			
Potential sun hours	227		262		365		429		515		539	
Total, worst case		356		512		1033		707		115		
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		39		99		416		301		67		

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163 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	08:19 (8)	07:28		
	22:20	21:35	20:17	18:53	22	08:41 (8)		
2	04:21	05:11	06:17	07:21	08:17 (8)	07:30		
	22:20	21:33	20:15	18:51	24	08:41 (8)		
3	04:22	05:13	06:19	07:23 (9)	07:23	08:16 (8)		
	22:19	21:31	20:12	6	07:29 (9)	18:48		
4	04:23	05:15	06:21	07:19 (9)	07:25	08:16 (8)		
	22:18	21:29	20:09	27	08:20 (6)	18:45		
5	04:24	05:17	06:23	07:17 (9)	07:27	08:15 (8)		
	22:18	21:26	20:06	36	08:23 (6)	18:42		
6	04:25	05:20	06:37 (5)	07:15 (9)	07:29	08:14 (8)		
	22:17	21:24	7	06:44 (5)	20:04	44	08:25 (6)	
7	04:26	05:22	06:34 (5)	06:28	07:14 (9)	07:31	08:14 (8)	
	22:16	21:22	13	06:47 (5)	20:01	50	08:27 (6)	
8	04:27	05:24	06:32 (5)	06:30	07:13 (9)	07:34	08:15 (8)	
	22:15	21:20	17	06:49 (5)	19:58	53	08:28 (6)	
9	04:29	05:26	06:31 (5)	06:32	07:12 (9)	07:36	08:15 (8)	
	22:14	21:17	19	06:50 (5)	19:55	56	08:28 (6)	
10	04:30	05:28	06:30 (5)	06:34	07:11 (9)	07:38	08:15 (8)	
	22:13	21:15	21	06:51 (5)	19:52	59	08:29 (6)	
11	04:32	05:30	06:29 (5)	06:36	07:11 (9)	07:40	08:15 (8)	
	22:12	21:12	23	06:52 (5)	19:50	59	08:29 (6)	
12	04:33	05:32	06:28 (5)	06:38	07:11 (9)	07:42	08:17 (8)	
	22:10	21:10	24	06:52 (5)	19:47	61	08:30 (6)	
13	04:34	05:34	06:27 (5)	06:40	07:11 (9)	07:45	08:18 (8)	
	22:09	21:07	26	06:53 (5)	19:44	61	08:30 (6)	
14	04:36	05:37	06:27 (5)	06:42	07:12 (9)	07:47	08:19 (8)	
	22:08	21:05	26	06:53 (5)	19:41	60	08:30 (6)	
15	04:38	05:39	06:27 (5)	06:45	07:14 (9)	07:49	08:24 (8)	
	22:06	21:02	26	06:53 (5)	19:38	57	08:30 (6)	
16	04:39	05:41	06:26 (5)	06:47	07:16 (9)	07:51	08:22 (8)	
	22:05	21:00	27	06:53 (5)	19:36	52	08:29 (6)	
17	04:41	05:43	06:26 (5)	06:49	07:18 (9)	07:53	08:24 (8)	
	22:03	20:57	27	06:53 (5)	19:33	48	08:29 (6)	
18	04:43	05:45	06:26 (5)	06:51	07:48 (6)	07:56	08:26 (8)	
	22:02	20:55	27	06:53 (5)	19:30	40	08:28 (6)	
19	04:44	05:47	06:26 (5)	06:53	07:49 (6)	07:58	08:26 (8)	
	22:00	20:52	26	06:52 (5)	19:27	40	08:29 (6)	
20	04:46	05:49	06:26 (5)	06:55	07:49 (6)	08:00	08:26 (8)	
	21:59	20:50	26	06:52 (5)	19:24	39	08:28 (6)	
21	04:48	05:51	06:27 (5)	06:57	07:49 (6)	08:02	08:26 (8)	
	21:57	20:47	24	06:51 (5)	19:22	38	08:27 (6)	
22	04:50	05:54	06:27 (5)	06:59	07:49 (6)	08:05	08:26 (8)	
	21:55	20:44	23	06:50 (5)	19:19	37	08:26 (6)	
23	04:52	05:56	06:28 (5)	07:01	07:50 (6)	08:07	08:26 (8)	
	21:53	20:42	20	06:48 (5)	19:16	34	08:24 (6)	
24	04:53	05:58	06:30 (5)	07:04	07:50 (6)	08:09	08:24 (6)	
	21:52	20:39	17	06:47 (5)	19:13	33	08:23 (6)	
25	04:55	06:00	06:32 (5)	07:06	07:51 (6)	07:12	09:13 (7)	
	21:50	20:36	13	06:45 (5)	19:10	30	08:21 (6)	
26	04:57	06:02	06:34 (5)	07:08	07:52 (6)	07:14	09:07 (7)	
	21:48	20:34	7	06:41 (5)	19:07	27	08:19 (6)	
27	04:59	06:04		07:10	07:54 (6)	07:16	09:05 (7)	
	21:46	20:31		19:05	22	08:16 (6)	20	09:25 (7)
28	05:01	06:06		07:12	07:57 (6)	07:18	09:03 (7)	15:41
	21:44	20:28		19:02	27	08:36 (8)	24	09:27 (7)
29	05:03	06:09		07:14		08:01 (6)	27	09:02 (7)
	21:42	20:26		18:59	24	08:39 (8)	27	09:29 (7)
30	05:05	06:11		07:16		08:20 (8)	29	09:00 (7)
	21:40	20:23		18:56	20	08:40 (8)	29	09:29 (7)
31	05:07	06:13				07:25		15:37
	21:38	20:20				16:34	31	09:31 (7)
Potential sun hours	538	474		386		321	241	207
Total, worst case		439		1140		482	705	
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		221		527		136	55	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 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	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)	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_Nordex163

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Baiba / baiba.ozolina@environment.lv

Calculated:

16/01/2026 15:04/4.1.254

SHADOW - Calendar

Calculation: Flickering_Valka_Nordex163 Shadow receptor: Ž uldini 2 km dzivojama maja Nr.1 - Shadow Receptor: 1.0×1.0 Azimuth: 3.1° Slope: 90.0° (579) 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	06:48 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	08:39 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)	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		