

Project: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Aizkalni - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (83)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:02 52	11:02 (1.1) 14:25 (1.3) 17:00	08:30 18:02 20:08	07:26 18:02 20:08	05:47 21:11 22:08	04:50 22:25 21:43	04:44 22:25 21:43	05:30 22:25 21:43	06:32 22:25 21:43	07:32 22:25 21:43	07:38 22:25 21:43	08:40 22:25 21:43
2	09:06 16:03 50	11:04 (1.1) 14:26 (1.3) 17:02	08:28 18:04 20:10	07:23 18:04 20:10	05:45 21:13 22:10	04:49 22:24 21:41	04:45 22:24 21:41	05:32 22:24 21:41	06:34 22:24 21:41	07:34 22:24 21:41	07:40 22:24 21:41	08:42 22:24 21:41
3	09:06 16:05 49	11:04 (1.1) 14:26 (1.3) 17:04	08:26 18:07 20:12	07:21 18:07 20:12	05:42 21:15 22:11	04:48 22:24 21:39	04:46 22:24 21:39	05:34 22:24 21:39	06:36 22:24 21:39	07:36 22:24 21:39	07:42 22:24 21:39	08:44 22:24 21:39
4	09:05 16:06 47	11:05 (1.1) 14:27 (1.3) 17:06	08:24 18:09 20:14	07:18 18:09 20:14	05:40 21:17 22:12	04:47 22:23 21:37	04:47 22:23 21:37	05:36 22:23 21:37	06:38 22:23 21:37	07:38 22:23 21:37	07:44 22:23 21:37	08:46 22:23 21:37
5	09:05 16:07 45	11:07 (1.1) 14:27 (1.3) 17:09	08:22 18:11 20:16	07:16 18:11 20:16	05:38 21:19 22:14	04:46 22:23 21:35	04:48 22:23 21:35	05:38 22:23 21:35	06:40 22:23 21:35	07:40 22:23 21:35	07:47 22:23 21:35	08:48 22:23 21:35
6	09:04 16:09 42	11:09 (1.1) 14:27 (1.3) 17:11	08:20 18:13 20:19	07:13 18:13 20:19	05:35 21:21 22:15	04:45 22:22 21:33	04:49 22:22 21:33	05:40 22:22 21:33	06:42 22:22 21:33	07:42 22:22 21:33	07:49 22:22 21:33	08:50 22:22 21:33
7	09:04 16:10 38	11:11 (1.1) 14:28 (1.3) 17:13	08:18 18:15 20:21	07:10 18:15 20:21	05:33 21:23 22:16	04:44 22:21 21:31	04:50 22:21 21:31	05:42 22:21 21:31	06:44 22:21 21:31	07:45 22:21 21:31	07:51 22:21 21:31	08:52 22:21 21:31
8	09:03 16:12 32	13:56 (1.3) 14:28 (1.3) 17:15	08:16 18:17 20:23	07:08 18:17 20:23	05:31 21:25 22:17	04:43 22:20 21:28	04:51 22:20 21:28	05:44 22:20 21:28	06:46 22:20 21:28	07:47 22:20 21:28	07:53 22:20 21:28	08:54 22:20 21:28
9	09:02 16:14 32	13:56 (1.3) 14:28 (1.3) 17:18	08:14 18:20 20:25	07:05 18:20 20:25	05:29 21:27 22:18	04:42 22:19 21:26	04:52 22:19 21:26	05:46 22:19 21:26	06:48 22:19 21:26	07:49 22:19 21:26	07:55 22:19 21:26	08:56 22:19 21:26
10	09:02 16:15 31	13:57 (1.3) 14:28 (1.3) 17:20	08:11 18:22 20:27	07:02 18:22 20:27	05:27 21:29 22:19	04:42 22:18 21:24	04:53 22:18 21:24	05:48 22:18 21:24	06:50 22:18 21:24	07:51 22:18 21:24	07:58 22:18 21:24	08:58 22:18 21:24
11	09:01 16:17 30	13:58 (1.3) 14:28 (1.3) 17:22	08:09 18:24 20:29	07:00 18:24 20:29	05:25 21:31 22:20	04:41 22:17 21:22	04:55 22:17 21:22	05:50 22:17 21:22	06:52 22:17 21:22	07:53 22:17 21:22	08:00 22:17 21:22	09:00 22:17 21:22
12	09:00 16:19 30	13:58 (1.3) 14:28 (1.3) 17:24	08:07 18:26 20:31	06:57 18:26 20:31	05:23 21:33 22:21	04:41 22:16 21:26	04:56 22:16 21:26	05:52 22:16 21:26	06:54 22:16 21:26	07:55 22:16 21:26	08:02 22:16 21:26	09:02 22:16 21:26
13	08:59 16:20 29	13:59 (1.3) 14:28 (1.3) 17:27	08:05 18:28 20:33	06:54 18:28 20:33	05:21 21:35 22:22	04:40 22:15 21:27	04:57 22:15 21:27	05:54 22:15 21:27	06:56 22:15 21:27	07:57 22:15 21:27	08:04 22:15 21:27	09:04 22:15 21:27
14	08:58 16:22 28	14:00 (1.3) 14:28 (1.3) 17:29	08:02 18:30 20:35	06:52 18:30 20:35	05:19 21:37 22:23	04:40 22:14 21:28	04:59 22:14 21:28	05:56 22:14 21:28	06:58 22:14 21:28	07:59 22:14 21:28	08:06 22:14 21:28	09:06 22:14 21:28
15	08:57 16:24 26	14:01 (1.3) 14:27 (1.3) 17:31	08:00 18:32 20:37	06:49 18:32 20:37	05:17 21:39 22:23	04:40 22:12 21:32	05:00 22:12 21:32	05:58 22:12 21:32	07:00 22:12 21:32	08:01 22:12 21:32	08:08 22:12 21:32	09:08 22:12 21:32
16	08:56 16:26 25	14:02 (1.3) 14:27 (1.3) 17:33	07:58 18:34 20:39	06:46 18:34 20:39	05:15 21:41 22:24	04:39 22:11 21:40	05:02 22:11 21:40	06:00 22:11 21:40	07:02 22:11 21:40	08:03 22:11 21:40	08:10 22:11 21:40	09:10 22:11 21:40
17	08:54 16:28 23	14:03 (1.3) 14:26 (1.3) 17:36	07:55 18:37 20:42	06:44 18:37 20:42	05:13 21:43 22:24	04:39 22:10 21:47	05:03 22:10 21:47	06:02 22:10 21:47	07:04 22:10 21:47	08:05 22:10 21:47	08:13 22:10 21:47	09:13 22:10 21:47
18	08:53 16:30 21	14:05 (1.3) 14:26 (1.3) 17:38	07:53 18:39 20:44	06:41 18:39 20:44	05:11 21:45 22:25	04:39 22:08 21:55	05:05 22:08 21:55	06:04 22:08 21:55	07:06 22:08 21:55	08:08 22:08 21:55	08:15 22:08 21:55	09:15 22:08 21:55
19	08:52 16:32 19	14:06 (1.3) 14:25 (1.3) 17:40	07:51 18:41 20:46	06:38 18:41 20:46	05:09 21:47 22:25	04:39 22:07 21:52	05:07 22:07 21:52	06:06 22:07 21:52	07:08 22:07 21:52	08:10 22:07 21:52	08:17 22:07 21:52	09:17 22:07 21:52
20	08:50 16:34 15	14:08 (1.3) 14:23 (1.3) 17:42	07:48 18:43 20:48	06:36 18:43 20:48	05:07 21:49 22:26	04:39 22:05 21:50	05:08 22:05 21:50	06:08 22:05 21:50	07:10 22:05 21:50	08:12 22:05 21:50	08:19 22:05 21:50	09:19 22:05 21:50
21	08:49 16:36 11	14:11 (1.3) 14:22 (1.3) 17:45	07:46 18:45 20:50	06:33 18:45 20:50	05:06 21:50 22:26	04:39 22:04 21:50	05:10 22:04 21:50	06:10 22:04 21:50	07:12 22:04 21:50	08:14 22:04 21:50	08:21 22:04 21:50	09:21 22:04 21:50
22	08:47 16:38 08	14:11 (1.3) 14:22 (1.3) 17:45	07:43 18:45 20:50	06:30 18:45 20:50	05:04 21:50 22:26	04:39 22:04 21:50	05:12 22:04 21:50	06:12 22:04 21:50	07:14 22:04 21:50	08:16 22:04 21:50	08:23 22:04 21:50	09:23 22:04 21:50
23	08:46 16:40 07	14:12 (1.3) 14:23 (1.3) 17:46	07:41 18:46 20:51	06:28 18:46 20:51	05:02 21:51 22:26	04:40 22:03 21:49	05:13 22:03 21:49	06:14 22:03 21:49	07:16 22:03 21:49	08:18 22:03 21:49	08:25 22:03 21:49	09:25 22:03 21:49
24	08:44 16:42 06	14:13 (1.3) 14:24 (1.3) 17:47	07:39 18:47 20:52	06:25 18:47 20:52	05:01 21:52 22:26	04:40 22:02 21:48	05:15 22:02 21:48	06:16 22:02 21:48	07:18 22:02 21:48	08:20 22:02 21:48	08:27 22:02 21:48	09:27 22:02 21:48
25	08:43 16:44 05	14:14 (1.3) 14:25 (1.3) 17:48	07:36 18:48 20:53	06:22 18:48 20:53	05:00 21:53 22:26	04:40 22:01 21:47	05:17 22:01 21:47	06:18 22:01 21:47	07:20 22:01 21:47	08:22 22:01 21:47	08:29 22:01 21:47	09:29 22:01 21:47
26	08:41 16:46 04	14:15 (1.3) 14:26 (1.3) 17:49	07:33 18:49 20:54	06:19 18:49 20:54	04:59 21:54 22:26	04:41 22:00 21:46	05:19 22:00 21:46	06:20 22:00 21:46	07:22 22:00 21:46	08:24 22:00 21:46	08:31 22:00 21:46	09:31 22:00 21:46
27	08:39 16:48 03	14:16 (1.3) 14:27 (1.3) 17:50	07:30 18:50 20:55	06:16 18:50 20:55	04:57 21:55 22:26	04:41 22:00 21:46	05:20 22:00 21:46	06:22 22:00 21:46	07:24 22:00 21:46	08:26 22:00 21:46	08:33 22:00 21:46	09:33 22:00 21:46
28	08:38 16:51 02	14:17 (1.3) 14:28 (1.3) 17:51	07:28 18:51 20:56	06:14 18:51 20:56	04:55 21:56 22:26	04:42 22:00 21:46	05:22 22:00 21:46	06:24 22:00 21:46	07:26 22:00 21:46	08:28 22:00 21:46	08:35 22:00 21:46	09:35 22:00 21:46
29	08:36 16:53 01	14:18 (1.3) 14:29 (1.3) 17:52	07:25 18:52 20:57	06:11 18:52 20:57	04:53 21:57 22:26	04:42 22:00 21:46	05:24 22:00 21:46	06:26 22:00 21:46	07:28 22:00 21:46	08:30 22:00 21:46	08:37 22:00 21:46	09:37 22:00 21:46
30	08:34 16:55 00	14:19 (1.3) 14:30 (1.3) 17:53	07:22 18:53 20:58	06:08 18:53 20:58	04:51 21:58 22:26	04:43 22:00 21:46	05:26 22:00 21:46	06:28 22:00 21:46	07:30 22:00 21:46	08:32 22:00 21:46	08:39 22:00 21:46	09:39 22:00 21:46
31	08:32 16:57 235	14:20 (1.3) 14:31 (1.3) 17:54	07:19 18:54 20:59	06:05 18:54 20:59	04:49 21:59 22:26	04:45 22:00 21:46	05:28 22:00 21:46	06:30 22:00 21:46	07:32 22:00 21:46	08:34 22:00 21:46	08:41 22:00 21:46	09:41 22:00 21:46
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case	675										227	1543
Sun reduction	0.18										0.16	0.10
Oper. time red.	0.99										0.99	0.99
Wind dir. red.	0.65										0.66	0.64
Total reduction	0.11										0.10	0.07
Total, real	77										23	100

Table layout: For each day in each month the following 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)

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Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Alksniš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (34)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:02	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:11	04:50 22:08
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	04:49 22:09
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	04:48 22:11
4	09:05 16:06	08:24 17:06	07:18 18:09	06:55 20:14	05:40 21:17	04:47 22:12
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	04:45 22:15
7	09:04 16:11	08:18 17:13	07:10 18:15	06:47 20:20	05:33 21:23	04:44 22:16
8	09:03 16:12	08:16 17:15	07:08 18:17	06:45 20:23	05:31 21:25	04:43 22:17
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18
10	09:01 16:15	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:41 22:20
12	09:00 16:19	08:07 17:24	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:21
13	08:59 16:21	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:41 22:21
14	08:58 16:22	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22
15	08:56 16:24	08:00 17:31	06:49 18:32	06:26 20:37	05:17 21:39	04:40 22:23
16	08:55 16:26	07:58 17:33	06:46 18:34	06:24 20:39	05:15 21:41	04:40 22:23
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:41	05:13 21:43	04:39 22:24
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:45	04:39 22:24
19	08:51 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:09 21:46	04:39 22:25
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:08 21:48	04:39 22:25
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:39 22:25
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:40 22:26
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	04:40 22:26
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26
25	08:42 16:44	07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57	04:41 22:26
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26
27	08:39 16:49	07:31 17:58	06:17 18:57	05:56 21:02	04:57 22:00	04:41 22:26
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:25
29	08:35 16:53		07:11 20:02	05:52 21:06	04:54 22:04	04:43 22:25
30	08:34 16:55		07:09 20:04	05:49 21:09	04:52 22:05	04:43 22:25
31	08:32 16:57		07:06 20:06		04:51 22:07	
Potential sun hours	235	266	366	426	508	529
Total, worst case		231			471	355
Sun reduction		0.32			0.59	0.62
Oper. time red.		0.99			0.99	0.99
Wind dir. red.		0.67			0.61	0.61
Total reduction		0.22			0.36	0.38
Total, real		50			169	134

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)

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Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

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1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

July			August			September			October			November			December		
1	04:44	20:55 (4.4.A)	05:30		20:57 (4.4.A)	06:32		07:32				07:38		08:40			
	22:24	13 21:08 (4.4.A)	21:43	12	21:09 (4.4.A)	20:29		19:08				16:50		15:59			
2	04:45	20:55 (4.4.A)	05:32		21:00 (4.4.A)	06:34		07:34				07:40		08:41			
	22:24	14 21:09 (4.4.A)	21:41	7	21:07 (4.4.A)	20:26		19:06				16:48		15:58			
3	04:46	20:54 (4.4.A)	05:34			06:36		07:36				07:42		08:43			
	22:23	15 21:09 (4.4.A)	21:39			20:24		19:03				16:46		15:57			
4	04:47	20:54 (4.4.A)	05:36			06:38		07:38				07:44		08:45			
	22:23	15 21:09 (4.4.A)	21:37			20:21		19:00				16:44		15:57			
5	04:48	20:53 (4.4.A)	05:38			06:40		07:40				07:46		08:46			
	22:22	17 21:10 (4.4.A)	21:35			20:18		18:58				16:42		15:56			
6	04:49	20:53 (4.4.A)	05:40			06:42		07:42				07:49		08:48			
	22:21	18 21:11 (4.4.A)	21:33			20:16		18:55				16:40		15:55			
7	04:50	20:53 (4.4.A)	05:42			06:44		07:44				07:51		08:49			
	22:21	18 21:11 (4.4.A)	21:30			20:13		18:52				16:37		15:55			
8	04:51	20:52 (4.4.A)	05:44			06:46		07:46				07:53		08:51			
	22:20	20 21:12 (4.4.A)	21:28			20:10		18:50				16:35		15:54			
9	04:52	20:52 (4.4.A)	05:46			06:48		07:49				07:55		08:52			
	22:19	20 21:12 (4.4.A)	21:26			20:08		18:47				16:33		15:53			
10	04:54	20:53 (4.4.A)	05:48			06:50		07:51				07:57		08:53			
	22:18	21 21:14 (4.4.A)	21:24			20:05		18:45				16:31		15:53			
11	04:55	20:52 (4.4.A)	05:50			06:52		07:53				07:59		08:55			
	22:17	22 21:14 (4.4.A)	21:21			20:02		18:42				16:29		15:53			
12	04:56	20:52 (4.4.A)	05:52			06:54		07:55				08:02		08:56			
	22:16	22 21:14 (4.4.A)	21:19			20:00		18:39				16:28		15:52			
13	04:58	20:51 (4.4.A)	05:54			06:56		07:57				08:04		08:57			
	22:14	23 21:14 (4.4.A)	21:17			19:57		18:37				16:26		15:52			
14	04:59	20:52 (4.4.A)	05:56			06:58		07:59				08:06		08:58			
	22:13	24 21:16 (4.4.A)	21:14			19:54		18:34				16:24		15:52			
15	05:00	20:51 (4.4.A)	05:58			07:00		08:01				08:08		08:59			
	22:12	25 21:16 (4.4.A)	21:12			19:52		18:32				16:22		15:52			
16	05:02	20:51 (4.4.A)	06:00			07:02		08:03				08:10		09:00			
	22:11	25 21:16 (4.4.A)	21:09			19:49		18:29				16:20		15:52			
17	05:04	20:51 (4.4.A)	06:02			07:04		08:05				08:12		09:01			
	22:09	25 21:16 (4.4.A)	21:07			19:46		18:26				16:18		15:52			
18	05:05	20:51 (4.4.A)	06:04			07:06		08:07				08:14		09:02			
	22:08	25 21:16 (4.4.A)	21:05			19:43		18:24				16:17		15:52			
19	05:07	20:52 (4.4.A)	06:06			07:08		08:10				08:16		09:03			
	22:06	25 21:17 (4.4.A)	21:02			19:41		18:21				16:15		15:52			
20	05:08	20:51 (4.4.A)	06:08			07:10		08:12				08:18		09:03			
	22:05	26 21:17 (4.4.A)	21:00			19:38		18:19				16:14		15:53			
21	05:10	20:52 (4.4.A)	06:10			07:12		08:14				08:21		09:04			
	22:03	25 21:17 (4.4.A)	20:57			19:35		18:16				16:12		15:53			
22	05:12	20:51 (4.4.A)	06:12			07:14		08:16				08:23		09:04			
	22:02	26 21:17 (4.4.A)	20:55			19:33		18:14				16:10		15:54			
23	05:13	20:52 (4.4.A)	06:14			07:16		08:18				08:25		09:05			
	22:00	25 21:17 (4.4.A)	20:52			19:30		18:12				16:09		15:54			
24	05:15	20:51 (4.4.A)	06:16			07:18		08:20				08:27		09:05			
	21:58	25 21:16 (4.4.A)	20:50			19:27		18:09				16:08		15:55			
25	05:17	20:52 (4.4.A)	06:18			07:20		07:22				08:28		09:06			
	21:56	24 21:16 (4.4.A)	20:47			19:24		17:07				16:06		15:55			
26	05:19	20:53 (4.4.A)	06:20			07:22		07:25				08:30		09:06			
	21:55	23 21:16 (4.4.A)	20:45			19:22		17:04				16:05		15:56			
27	05:21	20:53 (4.4.A)	06:22			07:24		07:27				08:32		09:06			
	21:53	22 21:15 (4.4.A)	20:42			19:19		17:02				16:04		15:57			
28	05:22	20:53 (4.4.A)	06:24			07:26		07:29				08:34		09:06			
	21:51	22 21:15 (4.4.A)	20:39			19:16		17:00				16:03		15:58			
29	05:24	20:54 (4.4.A)	06:26			07:28		07:31				08:36		09:06			
	21:49	20 21:14 (4.4.A)	20:37			19:14		16:57				16:01		15:59			
30	05:26	20:54 (4.4.A)	06:28			07:30		07:33				08:38		09:06			
	21:47	18 21:12 (4.4.A)	20:34			19:11		16:55				16:00		16:00			
31	05:28	20:56 (4.4.A)	06:30					07:35				16:14 (2.1.)		09:06			
	21:45	14 21:10 (4.4.A)	20:32					16:53				16:19 (2.1.)		16:01			
Potential sun hours	530		470			385		324				247		216			
Total, worst case		657		19				231									
Sun reduction		0.57		0.52				0.31									
Oper. time red.		0.99		0.99				0.99									
Wind dir. red.		0.61		0.61				0.67									
Total reduction		0.35		0.32				0.21									
Total, real		230		6				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:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Altini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (74)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:37	06:40	07:40	07:47	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:25	08:31	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:57
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Apinaji - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (68)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:23	21:35	20:18	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:35	04:45	04:48	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:04	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:48	17:58	18:58	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Asarini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (5)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:04 20:08	05:47 21:11	04:50 22:08	04:45 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 16:00
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:59
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:43 21:15	04:48 22:11	04:46 22:23	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:07	08:24 17:07	07:18 18:09	06:56 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:44 15:57
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	04:45 22:14	04:49 22:21	05:40 21:32	06:42 20:16	07:42 18:55	07:49 16:40	08:48 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:48 20:21	05:34 21:23	04:44 22:16	04:50 22:20	05:42 21:30	06:44 20:13	07:45 18:53	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:16	07:08 18:18	06:45 20:23	05:31 21:25	04:44 22:17	04:51 22:20	05:44 21:28	06:46 20:10	07:47 18:50	07:53 16:36	08:50 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	04:54 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:57 16:32	08:53 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:20	04:55 22:17	05:50 21:21	06:52 20:02	07:53 18:42	07:59 16:30	08:54 15:53
12	08:59 16:19	08:07 17:25	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:20	04:57 22:16	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:28	08:56 15:53
13	08:58 16:21	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:41 22:21	04:58 22:14	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:53
14	08:57 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:25	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:46 18:35	06:24 20:39	05:15 21:41	04:40 22:23	05:02 22:11	06:00 21:09	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:22 20:41	05:13 21:43	04:40 22:24	05:04 22:09	06:02 21:07	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:12 21:44	04:40 22:24	05:05 22:08	06:04 21:05	07:06 19:44	08:07 18:24	08:14 16:17	09:02 15:53
19	08:51 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:10 21:46	04:40 22:25	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:16 16:15	09:02 15:53
20	08:50 16:34	07:48 17:43	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:18 16:14	09:03 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:25	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:17	08:20 16:12	09:04 15:54
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:05 21:52	04:40 22:26	05:12 22:01	06:12 20:55	07:14 19:33	08:16 18:14	08:22 16:11	09:04 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	04:40 22:26	05:14 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:24 16:09	09:05 15:55
24	08:44 16:43	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:41 22:26	05:16 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:26 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:53	06:02 20:58	05:00 21:57	04:41 22:26	05:17 21:56	06:18 20:47	07:20 19:25	07:22 17:07	08:28 16:07	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	07:25 17:05	08:30 16:05	09:06 15:57
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:26	05:21 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:25	05:23 21:51	06:24 20:39	07:26 19:17	07:29 17:00	08:34 16:03	09:06 15:58
29	08:35 16:53		07:12 20:02	05:52 21:06	04:54 22:03	04:43 22:25	05:25 21:49	06:26 20:37	07:28 19:14	07:31 16:58	08:36 16:02	09:06 15:59
30	08:34 16:56		07:09 20:04	05:50 21:08	04:53 22:05	04:44 22:25	05:27 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:01	09:06 16:00
31	08:32 16:58		07:06 20:06		04:52 22:06		05:28 21:45	06:30 20:32		07:35 16:53		09:06 16:01
Potential sun hours	235	266	366	426	508	529	529	469	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Atkalni - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (3)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:10	04:50 22:08	04:44 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 16:00
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:59
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:43 21:15	04:48 22:11	04:46 22:23	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:06	08:24 17:07	07:18 18:09	06:55 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:44 15:57
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	04:45 22:14	04:49 22:21	05:40 21:32	06:42 20:16	07:42 18:55	07:49 16:40	08:47 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:48 20:20	05:34 21:23	04:44 22:15	04:50 22:20	05:42 21:30	06:44 20:13	07:44 18:52	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:16	07:08 18:17	06:45 20:23	05:31 21:25	04:44 22:17	04:51 22:20	05:44 21:28	06:46 20:10	07:46 18:50	07:53 16:36	08:50 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
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11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:19	04:55 22:17	05:50 21:21	06:52 20:02	07:53 18:42	07:59 16:30	08:54 15:53
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14	08:57 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:24	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:46 18:34	06:24 20:39	05:15 21:41	04:40 22:23	05:02 22:10	06:00 21:09	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:41	05:13 21:43	04:40 22:24	05:04 22:09	06:02 21:07	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:44	04:40 22:24	05:05 22:08	06:04 21:05	07:06 19:43	08:07 18:24	08:14 16:17	09:02 15:53
19	08:51 16:32	07:50 17:40	06:38 18:41	06:16 20:45	05:10 21:46	04:40 22:25	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:16 16:15	09:02 15:53
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:18 16:14	09:03 15:53
21	08:48 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:25	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:17	08:20 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:40 22:25	05:12 22:01	06:12 20:55	07:14 19:33	08:16 18:14	08:22 16:11	09:04 15:54
23	08:45 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:53	04:40 22:26	05:14 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:24 16:09	09:05 15:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:15 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:26 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:53	06:01 20:58	05:00 21:57	04:41 22:26	05:17 21:56	06:18 20:47	07:20 19:25	07:22 17:07	08:28 16:06	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:54	06:20 20:44	07:22 19:22	07:25 17:04	08:30 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:25	05:21 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:25	05:23 21:51	06:24 20:39	07:26 19:16	07:29 17:00	08:34 16:03	09:06 15:58
29	08:35 16:53		07:12 20:02	05:52 21:06	04:54 22:03	04:43 22:25	05:25 21:49	06:26 20:37	07:28 19:14	07:31 16:57	08:36 16:02	09:06 15:59
30	08:34 16:55		07:09 20:04	05:49 21:08	04:53 22:05	04:44 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:01	09:06 16:00
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Potential sun hours	235	266	366	426	508	529	529	469	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Balki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (25)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:37	08:39
	16:02	17:00	18:02	20:08	21:10	22:08	22:24	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:04	17:02	18:04	20:10	21:12	22:09	22:24	21:41	20:26	19:06	16:48	15:58
3	09:05	08:26	07:20	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:10	22:23	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:44
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:57
5	09:04	08:22	07:15	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:46	08:46
	16:08	17:09	18:11	20:16	21:19	22:13	22:22	21:34	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:42	07:48	08:47
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:40	15:55
7	09:03	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:44	07:51	08:49
	16:11	17:13	18:15	20:20	21:23	22:15	22:20	21:30	20:13	18:52	16:37	15:54
8	09:03	08:15	07:07	06:45	05:31	04:43	04:51	05:44	06:46	07:46	07:53	08:50
	16:12	17:15	18:17	20:22	21:25	22:17	22:19	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:48	07:55	08:52
	16:14	17:18	18:19	20:24	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:54	05:48	06:50	07:50	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:23	20:05	18:44	16:31	15:53
11	09:00	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	07:59	08:54
	16:17	17:22	18:24	20:29	21:31	22:19	22:16	21:21	20:02	18:42	16:29	15:53
12	08:59	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:01	08:56
	16:19	17:24	18:26	20:31	21:33	22:20	22:15	21:19	19:59	18:39	16:27	15:52
13	08:58	08:04	06:54	06:32	05:21	04:40	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:21	22:14	21:16	19:57	18:37	16:26	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:57	06:46	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:23	22:10	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:36	20:41	21:42	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:44	22:24	22:08	21:04	19:43	18:24	16:17	15:52
19	08:51	07:50	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:09	08:16	09:02
	16:32	17:40	18:41	20:45	21:46	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:08	04:39	05:08	06:08	07:10	08:12	08:18	09:03
	16:34	17:42	18:43	20:47	21:48	22:25	22:05	20:59	19:38	18:19	16:13	15:53
21	08:48	07:45	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:44	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:40	05:12	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:25	22:01	20:55	19:32	18:14	16:10	15:54
23	08:45	07:41	06:27	06:06	05:03	04:40	05:13	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:53	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:26	09:05
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:49	19:27	18:09	16:08	15:55
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:28	09:05
	16:44	17:53	18:53	20:58	21:57	22:26	21:56	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:24	08:30	09:06
	16:46	17:56	18:55	21:00	21:58	22:26	21:54	20:44	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:57	21:02	22:00	22:25	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:25	21:51	20:39	19:16	17:00	16:02	15:58
29	08:35		07:11	05:52	04:54	04:43	05:24	06:26	07:28	07:31	08:36	09:06
	16:53		20:02	21:06	22:03	22:25	21:49	20:37	19:14	16:57	16:01	15:59
30	08:33		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:06		21:45	20:31		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Braki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (22)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:39
	16:03	17:00	18:02	20:08	21:10	22:08	22:24	21:43	20:29	19:08	16:51	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:04	17:02	18:04	20:10	21:13	22:09	22:24	21:41	20:26	19:06	16:48	15:58
3	09:05	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:58
4	09:05	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:44
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:57
5	09:05	08:22	07:15	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:46	08:46
	16:08	17:09	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:40	15:55
7	09:03	08:18	07:10	06:47	05:34	04:44	04:50	05:42	06:44	07:44	07:51	08:49
	16:11	17:13	18:15	20:20	21:23	22:15	22:20	21:30	20:13	18:52	16:38	15:55
8	09:03	08:16	07:08	06:45	05:31	04:44	04:51	05:44	06:46	07:46	07:53	08:50
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:36	15:54
9	09:02	08:13	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:49	07:55	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34	15:54
10	09:01	08:11	07:02	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:57	08:53
	16:16	17:20	18:22	20:27	21:29	22:19	22:18	21:23	20:05	18:45	16:32	15:53
11	09:00	08:09	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	07:59	08:54
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:30	15:53
12	08:59	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:20	22:15	21:19	20:00	18:39	16:28	15:53
13	08:58	08:04	06:54	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:21	22:14	21:17	19:57	18:37	16:26	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:23	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:23	22:10	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:40	05:04	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:37	20:41	21:43	22:24	22:09	21:07	19:46	18:27	16:19	15:52
18	08:53	07:53	06:41	06:19	05:11	04:40	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:44	22:24	22:08	21:05	19:43	18:24	16:17	15:52
19	08:51	07:50	06:38	06:16	05:10	04:39	05:07	06:06	07:08	08:10	08:16	09:02
	16:32	17:40	18:41	20:45	21:46	22:25	22:06	21:02	19:41	18:22	16:15	15:53
20	08:50	07:48	06:36	06:14	05:08	04:40	05:09	06:08	07:10	08:12	08:18	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:14	15:53
21	08:48	07:46	06:33	06:11	05:06	04:40	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:45	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:17	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:40	05:12	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:25	22:01	20:55	19:33	18:14	16:11	15:54
23	08:45	07:41	06:28	06:06	05:03	04:40	05:14	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:53	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:26	09:05
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:08	15:55
25	08:42	07:36	06:22	06:01	05:00	04:41	05:17	06:18	07:20	07:22	08:28	09:06
	16:45	17:53	18:53	20:58	21:57	22:26	21:56	20:47	19:24	17:07	16:06	15:56
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:30	09:06
	16:47	17:56	18:55	21:00	21:59	22:26	21:55	20:44	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:57	04:57	04:42	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:23	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:25	21:51	20:39	19:16	17:00	16:03	15:58
29	08:35		07:11	05:52	04:54	04:43	05:24	06:26	07:28	07:31	08:36	09:06
	16:53		20:02	21:06	22:03	22:25	21:49	20:37	19:14	16:57	16:02	15:59
30	08:34		07:09	05:49	04:53	04:44	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:58		20:06		22:06		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	529	529	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Bruveli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (17)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:03	08:30 17:00	07:26 18:02	07:04 20:08	05:47 21:11	20:11 (2.2.) 22:08
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	20:10 (2.2.) 22:09
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	20:10 (2.2.) 22:11
4	09:05 16:06	08:24 17:07	07:18 18:09	06:55 20:14	05:40 21:17	20:10 (2.2.) 22:12
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	20:09 (2.2.) 22:13
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	20:09 (2.2.) 22:14
7	09:04 16:11	08:18 17:13	07:10 18:15	06:48 20:20	05:34 21:23	20:09 (2.2.) 22:16
8	09:03 16:12	08:16 17:16	07:08 18:17	06:45 20:23	05:31 21:25	20:09 (2.2.) 22:17
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	20:09 (2.2.) 22:18
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	20:10 (2.2.) 22:19
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	20:11 (2.2.) 22:20
12	09:00 16:19	08:07 17:25	06:57 18:26	06:34 20:31	05:23 21:33	20:11 (2.2.) 22:21
13	08:59 16:21	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	20:12 (2.2.) 22:21
14	08:58 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	20:12 (2.2.) 22:22
15	08:56 16:24	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	20:14 (2.2.) 22:23
16	08:55 16:26	07:58 17:34	06:46 18:34	06:24 20:39	05:15 21:41	20:15 (2.2.) 22:23
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:41	05:13 21:43	20:16 (2.2.) 22:24
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:45	20:19 (2.2.) 22:24
19	08:51 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:10 21:46	21:05 (4.6.) 22:25
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:08 21:48	21:03 (4.6.) 22:25
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	21:03 (4.6.) 22:25
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	21:02 (4.6.) 22:26
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	21:02 (4.6.) 22:26
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	21:03 (4.6.) 22:26
25	08:42 16:45	07:36 17:54	06:22 18:53	06:01 20:58	05:00 21:57	21:02 (4.6.) 22:26
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	21:20 (4.6.) 22:26
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	21:02 (4.6.) 22:26
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	21:02 (4.6.) 22:25
29	08:35 16:53		07:12 20:02	05:52 21:06	04:54 22:03	21:03 (4.6.) 22:25
30	08:34 16:55		07:09 20:04	05:49 21:09	04:53 22:05	21:03 (4.6.) 22:25
31	08:32 16:58		07:06 20:06		04:51 22:07	21:03 (4.6.) 22:24
Potential sun hours	235	266	366	426	508	529
Total, worst case				101	628	456
Sun reduction				0.57	0.59	0.62
Oper. time red.				0.99	0.99	0.99
Wind dir. red.				0.63	0.62	0.60
Total reduction				0.36	0.36	0.37
Total, real				36	226	167

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

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

Project: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Bruveli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (17)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44 22:24 16	21:11 (4.6.) 21:27 (4.6.) 21:43	05:30 21:43 24	20:21 (2.2.) 20:45 (2.2.) 20:29	06:32 19:08 16:51	07:38 15:59
2	04:45 22:24 16	21:12 (4.6.) 21:28 (4.6.) 21:41	05:32 21:41 25	20:21 (2.2.) 20:46 (2.2.) 20:26	06:34 19:06 16:48	07:40 15:58
3	04:46 22:23 16	21:12 (4.6.) 21:28 (4.6.) 21:39	05:34 21:39 27	20:19 (2.2.) 20:46 (2.2.) 20:24	06:36 19:03 16:46	07:42 15:58
4	04:47 22:23 17	21:11 (4.6.) 21:28 (4.6.) 21:37	05:36 21:37 27	20:19 (2.2.) 20:46 (2.2.) 20:21	06:38 19:00 16:44	07:44 15:57
5	04:48 22:22 17	21:11 (4.6.) 21:28 (4.6.) 21:35	05:38 21:35 27	20:19 (2.2.) 20:46 (2.2.) 20:18	06:40 18:58 16:42	07:46 15:56
6	04:49 22:21 18	21:11 (4.6.) 21:29 (4.6.) 21:33	05:40 21:33 28	20:19 (2.2.) 20:47 (2.2.) 20:16	06:42 18:55 16:40	07:49 15:55
7	04:50 22:21 18	21:11 (4.6.) 21:29 (4.6.) 21:30	05:42 21:30 28	20:19 (2.2.) 20:47 (2.2.) 20:13	06:44 18:52 16:38	07:51 15:55
8	04:51 22:20 20	21:10 (4.6.) 21:30 (4.6.) 21:28	05:44 21:28 28	20:19 (2.2.) 20:47 (2.2.) 20:10	06:46 18:50 16:36	07:53 15:54
9	04:52 22:19 20	21:11 (4.6.) 21:31 (4.6.) 21:26	05:46 21:26 28	20:18 (2.2.) 20:46 (2.2.) 20:08	06:48 18:47 16:34	07:55 15:54
10	04:54 22:18 20	21:11 (4.6.) 21:31 (4.6.) 21:24	05:48 21:24 28	20:18 (2.2.) 20:46 (2.2.) 20:05	06:50 18:45 16:32	07:57 15:53
11	04:55 22:17 20	21:11 (4.6.) 21:31 (4.6.) 21:21	05:50 21:21 26	20:19 (2.2.) 20:45 (2.2.) 20:02	06:52 18:42 16:30	07:59 15:53
12	04:56 22:16 20	21:11 (4.6.) 21:32 (4.6.) 21:19	05:52 21:19 26	20:19 (2.2.) 20:45 (2.2.) 20:00	06:54 18:39 16:28	08:02 15:53
13	04:58 22:14 21	21:10 (4.6.) 21:31 (4.6.) 21:17	05:54 21:17 24	20:20 (2.2.) 20:44 (2.2.) 19:57	06:56 18:37 16:26	08:04 15:52
14	04:59 22:13 21	21:11 (4.6.) 21:32 (4.6.) 21:14	05:56 21:14 21	20:21 (2.2.) 20:42 (2.2.) 19:54	06:58 18:34 16:24	08:06 15:52
15	05:01 22:12 21	21:11 (4.6.) 21:32 (4.6.) 21:12	05:58 21:12 18	20:21 (2.2.) 20:39 (2.2.) 19:52	07:00 18:32 16:22	08:08 15:52
16	05:02 22:11 21	21:11 (4.6.) 21:32 (4.6.) 21:09	06:00 21:09 15	20:22 (2.2.) 20:37 (2.2.) 19:49	07:02 18:29 16:20	08:10 15:52
17	05:04 22:09 20	21:12 (4.6.) 21:32 (4.6.) 21:07	06:02 21:07 11	20:24 (2.2.) 20:35 (2.2.) 19:46	07:04 18:27 16:19	08:12 15:52
18	05:05 22:08 19	21:11 (4.6.) 21:30 (4.6.) 21:05	06:04 21:05 6	20:27 (2.2.) 20:33 (2.2.) 19:43	07:06 18:24 16:17	08:14 15:52
19	05:07 22:06 17	21:12 (4.6.) 21:29 (4.6.) 21:02	06:06 21:02 15	07:08 19:41 18:22	08:10 16:15 15:53	09:03
20	05:09 22:05 15	21:12 (4.6.) 21:27 (4.6.) 21:00	06:08 21:00 14	07:10 19:38 18:19	08:12 16:14 15:53	09:04
21	05:10 22:03 14	21:13 (4.6.) 21:27 (4.6.) 20:57	06:10 20:57 12	07:12 19:35 18:17	08:14 16:12 15:53	09:05
22	05:12 22:02 12	21:13 (4.6.) 21:25 (4.6.) 20:55	06:12 20:55 10	07:14 19:33 18:14	08:16 16:11 15:54	09:06
23	05:14 22:00 10	21:14 (4.6.) 21:24 (4.6.) 20:52	06:14 20:52 7	07:16 19:30 18:12	08:18 16:09 15:54	09:07
24	05:15 21:58 7	21:14 (4.6.) 21:21 (4.6.) 20:50	06:16 20:50 8	07:18 19:27 18:09	08:20 16:08 15:55	09:08
25	05:17 21:56 8	20:32 (2.2.) 21:20 (4.6.) 20:47	06:18 20:47 13	07:20 19:25 17:07	07:22 16:06 15:56	09:09
26	05:19 21:55 13	20:28 (2.2.) 21:19 (4.6.) 20:45	06:20 20:45 14	07:22 19:22 17:04	07:25 16:05 15:56	09:10
27	05:21 21:53 14	20:26 (2.2.) 20:40 (2.2.) 20:42	06:22 20:42 17	07:24 19:19 17:02	07:27 16:04 15:57	09:11
28	05:23 21:51 17	20:25 (2.2.) 20:42 (2.2.) 20:39	06:24 20:39 19	07:26 19:16 17:00	07:29 16:03 15:58	09:12
29	05:24 21:49 19	20:24 (2.2.) 20:43 (2.2.) 20:37	06:26 20:37 21	07:28 19:14 16:57	07:31 16:02 15:59	09:13
30	05:26 21:47 21	20:22 (2.2.) 20:43 (2.2.) 20:34	06:28 20:34 22	07:30 19:11 16:55	07:33 16:00 16:00	09:14
31	05:28 21:45 22	20:22 (2.2.) 20:44 (2.2.) 20:32	06:30 20:32 417	07:36 16:53 385	07:39 16:01 324	09:15 16:01 247
Potential sun hours	530	470	385	324	247	216
Total, worst case	530	417				
Sun reduction	0.57	0.52				
Oper. time red.	0.99	0.99				
Wind dir. red.	0.61	0.63				
Total reduction	0.34	0.32				
Total, real	182	134				

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Balini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (48)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:33	07:38	08:40
	16:03	17:00	18:03	20:08	21:11	22:08	22:25	21:44	20:29	19:09	16:51	16:00
2	09:06	08:28	07:24	07:01	05:45	04:49	04:45	05:32	06:34	07:35	07:40	08:42
	16:04	17:02	18:05	20:10	21:13	22:10	22:24	21:41	20:27	19:06	16:49	15:59
3	09:06	08:26	07:21	06:58	05:43	04:48	04:46	05:34	06:36	07:37	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:58
4	09:06	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:39	07:45	08:45
	16:07	17:07	18:09	20:15	21:17	22:12	22:23	21:37	20:21	19:01	16:44	15:57
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:08	17:09	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:11	06:48	05:34	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:11	17:13	18:16	20:21	21:23	22:16	22:21	21:31	20:13	18:53	16:38	15:55
8	09:03	08:16	07:08	06:45	05:32	04:44	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:16	18:18	20:23	21:25	22:17	22:20	21:29	20:11	18:50	16:36	15:54
9	09:03	08:14	07:05	06:42	05:29	04:43	04:53	05:46	06:48	07:49	07:56	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34	15:54
10	09:02	08:12	07:03	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:58	08:54
	16:16	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:32	15:53
11	09:01	08:09	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:30	15:53
12	09:00	08:07	06:57	06:35	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:40	16:28	15:53
13	08:59	08:05	06:55	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:23	17:29	18:31	20:35	21:37	22:23	22:14	21:15	19:55	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:01	08:08	09:00
	16:25	17:31	18:33	20:38	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:40	05:02	06:00	07:02	08:04	08:11	09:01
	16:26	17:34	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:56	06:44	06:22	05:13	04:40	05:04	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:27	16:19	15:52
18	08:53	07:53	06:41	06:19	05:12	04:40	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:53
19	08:52	07:51	06:39	06:17	05:10	04:40	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:03	19:41	18:22	16:15	15:53
20	08:50	07:48	06:36	06:14	05:08	04:40	05:09	06:08	07:10	08:12	08:19	09:04
	16:34	17:43	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:12	05:06	04:40	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:36	18:17	16:12	15:53
22	08:48	07:44	06:31	06:09	05:05	04:40	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:11	15:54
23	08:46	07:41	06:28	06:07	05:03	04:40	05:14	06:14	07:16	08:19	08:25	09:05
	16:40	17:49	18:50	20:54	21:54	22:26	22:00	20:53	19:30	18:12	16:09	15:54
24	08:44	07:39	06:25	06:04	05:01	04:40	05:16	06:16	07:18	08:21	08:27	09:06
	16:43	17:52	18:52	20:56	21:56	22:26	21:59	20:50	19:28	18:09	16:08	15:55
25	08:43	07:36	06:23	06:02	05:00	04:41	05:17	06:18	07:20	07:23	08:29	09:06
	16:45	17:54	18:54	20:58	21:58	22:26	21:57	20:47	19:25	17:07	16:07	15:56
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:47	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:05	16:05	15:56
27	08:39	07:31	06:17	05:57	04:57	04:42	05:21	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:29	06:15	05:54	04:55	04:42	05:23	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:17	17:00	16:03	15:58
29	08:36		07:12	05:52	04:54	04:43	05:25	06:26	07:28	07:32	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:58	16:02	15:59
30	08:34		07:09	05:50	04:53	04:44	05:27	06:28	07:30	07:34	08:38	09:07
	16:56		20:04	21:09	22:06	22:25	21:48	20:35	19:11	16:55	16:01	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:58		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Berzini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (93)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:06	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:06
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Celmaji - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (73)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:48	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:04	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:37	06:40	07:40	07:47	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:41	15:55
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:49	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:22	04:40	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:31	05:20	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:18	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:14	21:14	19:54	18:34	16:23	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:05	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:48	22:26	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:40	05:18	06:20	07:22	07:25	08:31	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:57
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:52		16:00
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Cenkuri (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (55)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:09	22:25	21:44	20:29	19:09	16:51	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:05	20:10	21:13	22:10	22:25	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:39	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:13	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:07	17:09	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:48	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:53	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:18	20:23	21:25	22:17	22:20	21:29	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:56	08:53
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:03	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:29	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:55	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:58
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:32	20:37	21:39	22:23	22:13	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:11	09:01
	16:26	17:33	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:55	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:02
	16:28	17:36	18:37	20:42	21:43	22:25	22:10	21:07	19:46	18:27	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:39	06:16	05:09	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:03	19:41	18:22	16:15	15:52
20	08:51	07:48	06:36	06:14	05:08	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:36	18:17	16:12	15:53
22	08:48	07:44	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:06
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:53	19:30	18:12	16:09	15:54
24	08:44	07:39	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:27	21:59	20:50	19:27	18:09	16:08	15:55
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:54	18:54	20:58	21:58	22:27	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:07
	16:46	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:21	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:29	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:03	22:26	21:51	20:40	19:17	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:06	22:25	21:48	20:35	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Cerpi - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (99)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

January		February		March		April		May		June	
1	09:06	08:30	15:26 (1.2.)	07:26		07:03	18:30 (1.1.)	05:47	04:50		
	16:02	17:00	37 16:03 (1.2.)	18:02		20:08	41 19:40 (1.3.)	21:11	22:08		
2	09:06	08:28	15:25 (1.2.)	07:23		07:01	18:31 (1.1.)	05:44	04:49		
	16:03	17:02	39 16:04 (1.2.)	18:04		20:10	40 19:42 (1.3.)	21:13	22:10		
3	09:06	08:26	15:24 (1.2.)	07:21		06:58	18:33 (1.1.)	05:42	04:48		
	16:05	17:04	39 16:03 (1.2.)	18:07		20:12	37 19:43 (1.3.)	21:15	22:11		
4	09:05	08:24	15:24 (1.2.)	07:18		06:55	18:37 (1.1.)	05:40	04:47		
	16:06	17:06	40 16:04 (1.2.)	18:09		20:14	29 19:43 (1.3.)	21:17	22:12		
5	09:05	08:22	15:24 (1.2.)	07:15		06:53	19:24 (1.3.)	05:38	04:46		
	16:07	17:08	41 16:05 (1.2.)	18:11		20:16	18 19:42 (1.3.)	21:19	22:13		
6	09:04	08:20	15:24 (1.2.)	07:13		06:50	19:24 (1.3.)	05:35	04:45		
	16:09	17:11	42 16:06 (1.2.)	18:13		20:18	17 19:41 (1.3.)	21:21	22:15		
7	09:04	08:18	15:23 (1.2.)	07:10		06:47	19:25 (1.3.)	05:33	04:44		
	16:10	17:13	42 16:05 (1.2.)	18:15		20:20	15 19:40 (1.3.)	21:23	22:16		
8	09:03	08:16	15:24 (1.2.)	07:08		06:45	19:26 (1.3.)	05:31	04:43		
	16:12	17:15	42 16:06 (1.2.)	18:17		20:23	12 19:38 (1.3.)	21:25	22:17		
9	09:02	08:14	15:24 (1.2.)	07:05		06:42	19:29 (1.3.)	05:29	04:42		
	16:14	17:18	43 16:07 (1.2.)	18:19		20:25	6 19:35 (1.3.)	21:27	22:18		
10	09:02	08:11	15:24 (1.2.)	07:02		06:39		05:27	04:42		
	16:15	17:20	42 16:06 (1.2.)	18:22		20:27		21:29	22:19		
11	09:01	08:09	15:24 (1.2.)	07:00		06:37		05:25	04:41		
	16:17	17:22	42 16:06 (1.2.)	18:24		20:29		21:31	22:20		
12	09:00	08:07	15:24 (1.2.)	06:57		06:34		05:23	04:41		
	16:19	17:24	42 16:06 (1.2.)	18:26		20:31		21:33	22:21		
13	08:59	08:05	15:24 (1.2.)	06:54		17:43 (1.1.)	06:32	05:21	04:40		
	16:20	17:27	42 16:06 (1.2.)	18:28	10	17:53 (1.1.)	20:33	21:35	22:22		
14	08:58	08:02	15:25 (1.2.)	06:52		17:39 (1.1.)	06:29	05:19	04:40		
	16:22	17:29	41 16:06 (1.2.)	18:30	17	17:56 (1.1.)	20:35	21:37	22:22		
15	08:57	08:00	15:25 (1.2.)	06:49		17:36 (1.1.)	06:26	05:17	04:40		
	16:24	17:31	40 16:05 (1.2.)	18:32	22	17:58 (1.1.)	20:37	21:39	22:23		
16	08:55	07:58	15:27 (1.2.)	06:46		17:34 (1.1.)	06:24	05:15	04:39		
	16:26	17:33	38 16:05 (1.2.)	18:34	26	18:00 (1.1.)	20:39	21:41	22:24		
17	08:54	07:55	15:27 (1.2.)	06:44		17:32 (1.1.)	06:21	05:13	04:39		
	16:28	17:36	36 16:03 (1.2.)	18:37	29	18:01 (1.1.)	20:41	21:43	22:24		
18	08:53	07:53	15:28 (1.2.)	06:41		17:31 (1.1.)	06:19	05:11	04:39		
	16:30	17:38	35 16:03 (1.2.)	18:39	31	18:02 (1.1.)	20:44	21:45	22:25		
19	08:52	07:51	15:29 (1.2.)	06:38		17:30 (1.1.)	06:16	05:09	04:39		
	16:32	17:40	32 16:01 (1.2.)	18:41	33	18:03 (1.1.)	20:46	21:47	22:25		
20	08:50	07:48	15:31 (1.2.)	06:36		17:29 (1.1.)	06:14	05:07	04:39		
	16:34	17:42	30 16:01 (1.2.)	18:43	34	18:03 (1.1.)	20:48	21:48	22:25		
21	08:49	07:46	15:32 (1.2.)	06:33		17:28 (1.1.)	06:11	05:06	04:39		
	16:36	17:44	27 15:59 (1.2.)	18:45	35	18:03 (1.1.)	20:50	21:50	22:26		
22	08:47	07:43	15:34 (1.2.)	06:30		17:27 (1.1.)	06:09	05:04	04:39		
	16:38	17:47	22 15:56 (1.2.)	18:47	36	18:03 (1.1.)	20:52	21:52	22:26		
23	08:46		15:36 (1.2.)	06:28		17:27 (1.1.)	06:06	05:02	04:40		
	16:40	12 15:48 (1.2.)	17:49	16 15:53 (1.2.)	18:49	36 18:03 (1.1.)	20:54	21:54	22:26		
24	08:44		15:34 (1.2.)	06:25		17:27 (1.1.)	06:04	05:01	04:40		
	16:42	17 15:51 (1.2.)	17:51	4 15:47 (1.2.)	18:51	36 18:03 (1.1.)	20:56	21:56	22:26		
25	08:43		15:32 (1.2.)	06:22		17:26 (1.1.)	06:01	04:59	04:40		
	16:44	21 15:53 (1.2.)	17:53	18:53	36 18:02 (1.1.)	20:58		21:57	22:26		
26	08:41		15:30 (1.2.)	06:19		17:27 (1.1.)	05:59	04:58	04:41		
	16:46	25 15:55 (1.2.)	17:56	18:55	35 18:02 (1.1.)	21:00		21:59	22:26		
27	08:39		15:29 (1.2.)	06:17		17:27 (1.1.)	05:56	04:56	04:41		
	16:49	27 15:56 (1.2.)	17:58	18:57	34 18:01 (1.1.)	21:02		22:01	22:26		
28	08:37		15:28 (1.2.)	06:14		17:26 (1.1.)	05:54	04:55	04:42		
	16:51	30 15:58 (1.2.)	18:00	19:00	34 18:00 (1.1.)	21:04		22:02	22:26		
29	08:36		15:27 (1.2.)	07:11		18:28 (1.1.)	05:52	04:54	04:42		
	16:53	32 15:59 (1.2.)		20:02	37 19:34 (1.3.)	21:07		22:04	22:25		
30	08:34		15:27 (1.2.)	07:09		18:28 (1.1.)	05:49	04:52	04:43		
	16:55	33 16:00 (1.2.)		20:04	38 19:35 (1.3.)	21:09		22:05	22:25		
31	08:32		15:26 (1.2.)	07:06		18:28 (1.1.)		04:51			
	16:57	36 16:02 (1.2.)		20:06	41 19:37 (1.3.)			22:07			
Potential sun hours	235		266	366		426		508	529		
Total, worst case	233		854	600		215					
Sun reduction	0.18		0.32	0.40		0.57					
Oper. time red.	0.99		0.99	0.99		0.99					
Wind dir. red.	0.67		0.67	0.66		0.66					
Total reduction	0.12		0.22	0.26		0.37					
Total, real	28		184	157		80					

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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Cerpi - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (99)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44 22:25	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:50	14:53 (1.2.) 15:59
2	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	43 15:36 (1.2.) 15:58
3	04:46 22:24	05:34 21:39	06:36 20:24	19:26 (1.3.) 19:32 (1.3.)	07:36 19:03	14:53 (1.2.) 15:57
4	04:47 22:23	05:36 21:37	06:38 20:21	19:23 (1.3.) 19:35 (1.3.)	07:38 19:00	14:53 (1.2.) 15:56
5	04:48 22:22	05:38 21:35	06:40 20:18	19:21 (1.3.) 19:36 (1.3.)	07:40 18:58	14:54 (1.2.) 15:56
6	04:49 22:22	05:40 21:33	06:42 20:16	19:20 (1.3.) 19:37 (1.3.)	07:42 18:55	14:54 (1.2.) 15:55
7	04:50 22:21	05:42 21:30	06:44 20:13	19:19 (1.3.) 19:37 (1.3.)	07:44 18:52	14:55 (1.2.) 15:54
8	04:51 22:20	05:44 21:28	06:46 20:10	18:32 (1.1.) 19:37 (1.3.)	07:47 18:50	14:55 (1.2.) 15:54
9	04:52 22:19	05:46 21:26	06:48 20:08	18:28 (1.1.) 19:37 (1.3.)	07:49 18:47	14:56 (1.2.) 15:53
10	04:53 22:18	05:48 21:24	06:50 20:05	18:25 (1.1.) 19:35 (1.3.)	07:51 18:44	14:57 (1.2.) 15:53
11	04:55 22:17	05:50 21:21	06:52 20:02	18:23 (1.1.) 19:32 (1.3.)	07:53 18:42	14:57 (1.2.) 15:52
12	04:56 22:16	05:52 21:19	06:54 20:00	18:21 (1.1.) 19:30 (1.3.)	07:55 18:39	14:59 (1.2.) 15:52
13	04:57 22:15	05:54 21:17	06:56 19:57	18:19 (1.1.) 19:27 (1.3.)	07:57 18:37	14:59 (1.2.) 15:52
14	04:59 22:13	05:56 21:14	06:58 19:54	18:18 (1.1.) 19:24 (1.3.)	07:59 18:34	15:01 (1.2.) 15:52
15	05:00 22:12	05:58 21:12	07:00 19:52	18:17 (1.1.) 19:22 (1.3.)	08:01 18:32	15:02 (1.2.) 15:52
16	05:02 22:11	06:00 21:10	07:02 19:49	18:16 (1.1.) 18:51 (1.1.)	08:03 18:29	15:03 (1.2.) 15:52
17	05:03 22:09	06:02 21:07	07:04 19:46	18:14 (1.1.) 18:50 (1.1.)	08:05 18:26	15:06 (1.2.) 15:52
18	05:05 22:08	06:04 21:05	07:06 19:43	18:14 (1.1.) 18:50 (1.1.)	08:07 18:24	15:08 (1.2.) 15:52
19	05:07 22:06	06:06 21:02	07:08 19:41	18:13 (1.1.) 18:49 (1.1.)	08:10 18:21	15:10 (1.2.) 15:52
20	05:08 22:05	06:08 21:00	07:10 19:38	18:13 (1.1.) 18:49 (1.1.)	18:21 18:19	15:52 15:53
21	05:10 22:03	06:10 20:57	07:12 19:35	18:13 (1.1.) 18:48 (1.1.)	08:14 18:16	09:04 15:53
22	05:12 22:02	06:12 20:55	07:14 19:33	18:13 (1.1.) 18:48 (1.1.)	08:16 18:14	09:05 15:53
23	05:13 22:00	06:14 20:52	07:16 19:30	18:13 (1.1.) 18:47 (1.1.)	08:18 18:11	09:05 15:54
24	05:15 21:58	06:16 20:50	07:18 19:27	18:13 (1.1.) 18:46 (1.1.)	08:20 18:09	09:06 15:55
25	05:17 21:57	06:18 20:47	07:20 19:24	18:13 (1.1.) 18:45 (1.1.)	07:22 17:07	09:06 15:55
26	05:19 21:55	06:20 20:45	07:22 19:22	18:14 (1.1.) 18:43 (1.1.)	07:25 17:04	09:06 15:56
27	05:20 21:53	06:22 20:42	07:24 19:19	18:15 (1.1.) 18:42 (1.1.)	07:27 17:02	09:06 15:57
28	05:22 21:51	06:24 20:39	07:26 19:16	18:17 (1.1.) 18:41 (1.1.)	07:29 17:00	09:07 15:58
29	05:24 21:49	06:26 20:37	07:28 19:14	18:19 (1.1.) 18:38 (1.1.)	07:31 16:57	09:07 15:59
30	05:26 21:47	06:28 20:34	07:30 19:11	18:21 (1.1.) 18:35 (1.1.)	07:33 16:55	09:07 16:00
31	05:28 21:45	06:30 20:32		07:36 16:53	14:54 (1.2.) 15:36 (1.2.)	09:06 16:01
Potential sun hours	530	470	385	323	247	215
Total, worst case			820	458	637	
Sun reduction			0.46	0.31	0.16	
Oper. time red.			0.99	0.99	0.99	
Wind dir. red.			0.66	0.67	0.67	
Total reduction			0.30	0.21	0.10	
Total, real			247	94	66	

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

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

Project: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ciruliš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (6)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:04 20:08	05:47 21:11	04:50 22:08	04:44 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 16:00
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:59
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:43 21:15	04:48 22:11	04:46 22:23	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:07	08:24 17:07	07:18 18:09	06:56 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:44 15:57
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	04:45 22:14	04:49 22:21	05:40 21:33	06:42 20:16	07:42 18:55	07:49 16:40	08:48 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:48 20:21	05:34 21:23	04:44 22:16	04:50 22:21	05:42 21:30	06:44 20:13	07:45 18:53	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:16	07:08 18:18	06:45 20:23	05:31 21:25	04:44 22:17	04:51 22:20	05:44 21:28	06:46 20:10	07:47 18:50	07:53 16:36	08:51 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	04:54 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:57 16:32	08:53 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:20	04:55 22:17	05:50 21:21	06:52 20:02	07:53 18:42	07:59 16:30	08:55 15:53
12	09:00 16:19	08:07 17:25	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:20	04:57 22:16	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:28	08:56 15:53
13	08:59 16:21	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:41 22:21	04:58 22:14	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:53
14	08:57 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:25	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:46 18:35	06:24 20:39	05:15 21:41	04:40 22:23	05:02 22:11	06:00 21:10	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:22 20:41	05:13 21:43	04:40 22:24	05:04 22:09	06:02 21:07	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:45	04:40 22:24	05:05 22:08	06:04 21:05	07:06 19:44	08:08 18:24	08:14 16:17	09:02 15:53
19	08:51 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:10 21:46	04:40 22:25	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:16 16:15	09:03 15:53
20	08:50 16:34	07:48 17:43	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:18 16:14	09:03 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:25	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:17	08:21 16:12	09:04 15:54
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:05 21:52	04:40 22:26	05:12 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:11	09:04 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	04:40 22:26	05:14 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:25 16:09	09:05 15:54
24	08:44 16:43	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:16 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:53	06:02 20:58	05:00 21:57	04:41 22:26	05:17 21:56	06:18 20:47	07:20 19:25	07:22 17:07	08:28 16:07	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:56	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	07:25 17:05	08:30 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:26	05:21 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:25	05:23 21:51	06:24 20:39	07:26 19:17	07:29 17:00	08:34 16:03	09:06 15:58
29	08:35 16:53		07:12 20:02	05:52 21:06	04:54 22:03	04:43 22:25	05:25 21:49	06:26 20:37	07:28 19:14	07:31 16:58	08:36 16:02	09:06 15:59
30	08:34 16:56		07:09 20:04	05:50 21:09	04:53 22:05	04:44 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:01	09:06 16:00
31	08:32 16:58		07:06 20:06		04:52 22:06		05:28 21:45	06:30 20:32		07:36 16:53		09:06 16:01
Potential sun hours	235	266	366	426	508	529	529	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ciruli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (64)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:47	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:47
	16:07	17:09	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:35	04:45	04:49	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:55	08:52
	16:13	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:50	22:26	22:04	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:11	05:52	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Dabes (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (16)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January			February			March			April			May			June		
1	09:06	08:30	07:26							07:04			05:47		06:25 (4.6.)	04:50		
	16:03	17:00	18:02							20:08			21:11	31	06:56 (4.6.)	22:08		
2	09:06	08:28	07:23							07:01			05:45		06:25 (4.6.)	04:49		
	16:04	17:02	18:05							20:10			21:13	31	06:56 (4.6.)	22:10		
3	09:06	08:26	07:21							06:58			05:43		06:25 (4.6.)	04:48		
	16:05	17:04	18:07							20:12			21:15	32	06:57 (4.6.)	22:11		
4	09:05	08:24	07:18							06:56			05:40		06:25 (4.6.)	04:47		
	16:07	17:07	18:09							20:14			21:17	32	06:57 (4.6.)	22:12		
5	09:05	08:22	07:16							06:53			05:38		06:07 (2.3.)	04:46		
	16:08	17:09	18:11							20:17			21:19	36	06:57 (4.6.)	22:13		
6	09:04	08:20	07:13							06:50			05:36		06:05 (2.3.)	04:45		
	16:09	17:11	18:13							20:19			21:21	40	06:57 (4.6.)	22:15		
7	09:04	08:18	07:10							06:48			05:34		06:03 (2.3.)	04:44		
	16:11	17:13	18:15							20:21			21:23	44	06:57 (4.6.)	22:16		
8	09:03	08:16	07:08							06:45			05:32		06:01 (2.3.)	04:44		
	16:12	17:16	18:18							20:23			21:25	47	06:57 (4.6.)	22:17		
9	09:02	08:14	07:05							06:42			05:29		05:59 (2.3.)	04:43		
	16:14	17:18	18:20							20:25			21:27	49	06:56 (4.6.)	22:18		
10	09:02	08:11	07:03							06:40			05:27		05:57 (2.3.)	04:42		
	16:16	17:20	18:22							20:27			21:29	50	06:56 (4.6.)	22:19		
11	09:01	08:09	07:00							06:37			05:25		05:56 (2.3.)	04:42		
	16:17	17:22	18:24							20:29			21:31	50	06:55 (4.6.)	22:20		
12	09:00	08:07	06:57							06:35			05:23		05:55 (2.3.)	04:41		
	16:19	17:25	18:26							20:31			21:33	52	06:55 (4.6.)	22:21		
13	08:59	08:05	06:55							06:32			05:21		05:55 (2.3.)	04:41		
	16:21	17:27	18:28							20:33			21:35	51	06:54 (4.6.)	22:22		
14	08:58	08:02	06:52							06:29			05:19		05:54 (2.3.)	04:40		
	16:23	17:29	18:30							20:35			21:37	49	06:53 (4.6.)	22:22		
15	08:57	08:00	06:49						07:15 (2.2.)	06:27			05:17		05:55 (2.3.)	04:40		
	16:25	17:31	18:33	8					07:23 (2.2.)	20:37			21:39	48	06:53 (4.6.)	22:23		
16	08:55	07:58	06:47						07:12 (2.2.)	06:24			05:15		05:55 (2.3.)	04:40		
	16:26	17:34	18:35	14					07:26 (2.2.)	20:39			21:41	46	06:52 (4.6.)	22:24		
17	08:54	07:56	06:44						07:09 (2.2.)	06:22			05:13		05:55 (2.3.)	04:40		
	16:28	17:36	18:37	18					07:27 (2.2.)	20:42			21:43	43	06:50 (4.6.)	22:24		
18	08:53	07:53	06:41						07:08 (2.2.)	06:19			05:12		05:55 (2.3.)	04:40		
	16:30	17:38	18:39	21					07:29 (2.2.)	20:44			21:45	42	06:50 (4.6.)	22:25		
19	08:52	07:51	06:39						07:06 (2.2.)	06:17			05:10		05:55 (2.3.)	04:40		
	16:32	17:40	18:41	23					07:29 (2.2.)	20:46			21:47	38	06:48 (4.6.)	22:25		
20	08:50	07:48	06:36						07:05 (2.2.)	06:14			05:08		05:56 (2.3.)	04:40		
	16:34	17:43	18:43	24					07:29 (2.2.)	20:48			21:48	34	06:47 (4.6.)	22:25		
21	08:49	07:46	06:33						07:04 (2.2.)	06:11			05:06		05:57 (2.3.)	04:40		
	16:36	17:45	18:45	25					07:29 (2.2.)	20:50			21:50	27	06:44 (4.6.)	22:26		
22	08:47	07:43	06:31						07:04 (2.2.)	06:09			05:05		05:58 (2.3.)	04:40		
	16:38	17:47	18:47	26					07:30 (2.2.)	20:52			21:52	17	06:15 (2.3.)	22:26		
23	08:46	07:41	06:28						07:03 (2.2.)	06:07			05:03		05:58 (2.3.)	04:40		
	16:40	17:49	18:49	26					07:29 (2.2.)	20:54	2	06:41 (4.6.)	21:54	16	06:14 (2.3.)	22:26		
24	08:44	07:39	06:25						07:03 (2.2.)	06:04		06:36 (4.6.)	05:01		05:59 (2.3.)	04:40		
	16:43	17:51	18:51	25					07:28 (2.2.)	20:56	13	06:49 (4.6.)	21:56	14	06:13 (2.3.)	22:26		
25	08:43	07:36	06:22						07:03 (2.2.)	06:02		06:33 (4.6.)	05:00		06:01 (2.3.)	04:41		
	16:45	17:54	18:54	25					07:28 (2.2.)	20:58	18	06:51 (4.6.)	21:57	12	06:13 (2.3.)	22:26		
26	08:41	07:34	06:20						07:03 (2.2.)	05:59		06:31 (4.6.)	04:58		06:01 (2.3.)	04:41		
	16:47	17:56	18:56	24					07:27 (2.2.)	21:00	21	06:52 (4.6.)	21:59	10	06:11 (2.3.)	22:26		
27	08:39	07:31	06:17						07:04 (2.2.)	05:57		06:29 (4.6.)	04:57		06:04 (2.3.)	04:42		
	16:49	17:58	18:58	22					07:26 (2.2.)	21:02	25	06:54 (4.6.)	22:01	5	06:09 (2.3.)	22:26		
28	08:37	07:28	06:14						07:05 (2.2.)	05:54		06:28 (4.6.)	04:55			04:42		
	16:51	18:00	19:00	20					07:25 (2.2.)	21:05	27	06:55 (4.6.)	22:02			22:26		
29	08:36		07:12						08:06 (2.2.)	05:52		06:27 (4.6.)	04:54			04:43		
	16:53		20:02	16					08:22 (2.2.)	21:07	28	06:55 (4.6.)	22:04			22:25		
30	08:34		07:09						08:08 (2.2.)	05:50		06:26 (4.6.)	04:53			04:44		
	16:56		20:04	11					08:19 (2.2.)	21:09	29	06:55 (4.6.)	22:05			22:25		
31	08:32		07:06										04:52					
	16:58		20:06										22:07					
Potential sun hours	235	266	366							426			508			529		
Total, worst case							328				163			946				
Sun reduction							0.40				0.57			0.59				
Oper. time red.							0.99				0.99			0.99				
Wind dir. red.							0.65				0.68			0.68				
Total reduction							0.25				0.38			0.39				
Total, real							84				62			369				

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Dabes (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (16)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:05 (2.3)	06:32	07:32	07:38
	22:25	21:43	07:05 (4.6)	20:29	19:09	16:51
2	04:45	05:32	06:06 (2.3)	06:34	07:34	07:40
	22:24	21:41	07:06 (4.6)	20:27	19:06	16:49
3	04:46	05:34	06:08 (2.3)	06:36	07:36	07:42
	22:24	21:39	07:06 (4.6)	20:24	19:03	16:46
4	04:47	05:36	06:09 (2.3)	06:38	07:39	07:44
	22:23	21:37	07:06 (4.6)	20:21	19:01	16:44
5	04:48	05:38	06:11 (2.3)	06:40	07:41	07:47
	22:22	21:35	07:06 (4.6)	20:19	18:58	16:42
6	04:49	05:40	06:13 (2.3)	06:42	07:43	07:49
	22:22	21:33	07:06 (4.6)	20:16	18:55	16:40
7	04:50	05:42	06:15 (2.3)	06:44	07:45	07:51
	22:21	21:31	07:06 (4.6)	20:13	18:53	16:38
8	04:51	05:44	06:16 (4.6)	06:46	07:47	07:53
	22:20	21:28	07:06 (4.6)	20:11	18:50	16:36
9	04:53	05:46	06:18 (4.6)	06:48	07:49	07:55
	22:19	21:26	07:06 (4.6)	20:08	18:47	16:34
10	04:54	05:48	06:20 (4.6)	06:50	07:51	07:58
	22:18	21:24	07:05 (4.6)	20:05	18:45	16:32
11	04:55	05:50	06:22 (4.6)	06:52	07:53	08:00
	22:17	21:22	07:05 (4.6)	20:03	18:42	16:30
12	04:57	05:52	06:24 (4.6)	06:54	07:55	08:02
	22:16	21:19	07:04 (4.6)	20:00	18:40	16:28
13	04:58	05:54	06:26 (4.6)	06:56	07:57	08:04
	22:15	21:17	07:04 (4.6)	19:57	18:37	16:26
14	04:59	05:56	06:28 (4.6)	06:58	07:59	08:06
	22:13	21:14	07:03 (4.6)	19:54	18:34	16:24
15	05:01	05:58	06:30 (4.6)	07:00	08:01	08:08
	22:12	21:12	07:02 (4.6)	19:52	18:32	16:22
16	05:02	06:00	06:32 (4.6)	07:02	08:03	08:10
	22:11	21:10	07:01 (4.6)	19:49	18:29	16:20
17	05:04	06:12 (2.3)	06:34 (4.6)	07:04	08:06	08:12
	22:09	21:07	06:58 (4.6)	19:46	18:27	16:19
18	05:05	06:10 (2.3)	06:36 (4.6)	07:06	08:08	08:15
	22:08	21:05	06:56 (4.6)	19:44	18:24	16:17
19	05:07	06:09 (2.3)	06:38 (4.6)	07:08	08:10	08:17
	22:07	21:02	06:54 (4.6)	19:41	18:22	16:15
20	05:09	06:08 (2.3)	06:40 (4.6)	07:10	08:12	08:19
	22:05	21:00	06:52 (4.6)	19:38	18:19	16:14
21	05:10	06:08 (2.3)	06:42 (4.6)	07:12	08:14	08:21
	22:03	20:57	06:54 (4.6)	19:36	18:17	16:12
22	05:12	06:07 (2.3)	06:44 (4.6)	07:14	08:16	08:23
	22:02	20:55	06:56 (4.6)	19:33	18:14	16:11
23	05:14	06:07 (2.3)	06:46 (4.6)	07:16	08:18	08:25
	22:00	20:52	06:58 (4.6)	19:30	18:12	16:09
24	05:16	06:07 (2.3)	06:48 (4.6)	07:18	08:21	08:27
	21:58	20:50	06:58 (4.6)	19:27	18:09	16:08
25	05:17	06:06 (2.3)	06:50 (4.6)	07:20	08:23	08:29
	21:57	20:47	06:59 (4.6)	19:25	18:07	16:07
26	05:19	06:06 (2.3)	06:52 (4.6)	07:22	08:25	08:31
	21:55	20:45	07:01 (4.6)	19:22	18:05	16:05
27	05:21	06:06 (2.3)	06:54 (4.6)	07:24	08:27	08:32
	21:53	20:42	07:02 (4.6)	19:19	18:02	16:04
28	05:23	06:05 (2.3)	06:56 (4.6)	07:26	08:29	08:34
	21:51	20:40	07:02 (4.6)	19:17	18:00	16:03
29	05:25	06:05 (2.3)	06:58 (4.6)	07:28	08:31	08:36
	21:49	20:37	07:04 (4.6)	19:14	18:58	16:02
30	05:27	06:06 (2.3)	06:59 (4.6)	07:30	08:33	08:38
	21:47	20:34	07:04 (4.6)	19:11	18:55	16:01
31	05:28	06:05 (2.3)	07:00 (4.6)	07:32	08:35	08:40
	21:45	20:32	07:04 (4.6)	19:09	18:53	16:01
Potential sun hours	530	470	385	324	247	216
Total, worst case	471	639	335			
Sun reduction	0.57	0.52	0.46			
Oper. time red.	0.99	0.99	0.99			
Wind dir. red.	0.68	0.68	0.65			
Total reduction	0.38	0.34	0.29			
Total, real	179	220	99			

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Dimanti - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (101)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January			February			March			April			May			June		
1	09:06		14:07 (1.2)	08:30		14:25 (1.2)	07:26		16:34 (1.1)	07:03		05:47				04:50		
	16:02	37	14:44 (1.2)		17:00	23	14:48 (1.2)	18:02		17:13 (1.1)	20:08		21:11			22:08		
2	09:06		14:07 (1.2)	08:28		14:27 (1.2)	07:23		16:33 (1.1)	07:01		05:44				04:49		
	16:03	37	14:44 (1.2)		17:02	19	14:46 (1.2)	18:04		17:13 (1.1)	20:10		21:13			22:10		
3	09:06		14:08 (1.2)	08:26		14:30 (1.2)	07:21		16:33 (1.1)	06:58		05:42				04:48		
	16:05	37	14:45 (1.2)		17:04	13	14:43 (1.2)	18:07		17:13 (1.1)	20:12		21:15			22:11		
4	09:05		14:08 (1.2)	08:24			07:18		16:32 (1.1)	06:55		05:40				04:47		
	16:06	38	14:46 (1.2)		17:06		18:09	41	17:13 (1.1)	20:14		21:17				22:12		
5	09:05		14:08 (1.2)	08:22			07:15		16:32 (1.1)	06:53		05:38				04:46		
	16:07	38	14:46 (1.2)		17:09		18:11	40	17:12 (1.1)	20:16		21:19				22:14		
6	09:04		14:09 (1.2)	08:20			07:13		16:33 (1.1)	06:50		05:35				04:45		
	16:09	38	14:47 (1.2)		17:11		18:13	40	17:13 (1.1)	20:18		21:21				22:15		
7	09:04		14:09 (1.2)	08:18			07:10		16:32 (1.1)	06:47		05:33				04:44		
	16:10	39	14:48 (1.2)		17:13		18:15	40	17:12 (1.1)	20:20		21:23				22:16		
8	09:03		14:09 (1.2)	08:16			07:08		16:32 (1.1)	06:45		05:31				04:43		
	16:12	40	14:49 (1.2)		17:15		18:17	39	17:11 (1.1)	20:23		21:25				22:17		
9	09:02		14:09 (1.2)	08:14			07:05		16:33 (1.1)	06:42		05:29				04:42		
	16:14	40	14:49 (1.2)		17:18		18:19	38	17:11 (1.1)	20:25		21:27				22:18		
10	09:02		14:10 (1.2)	08:11			07:02		16:33 (1.1)	06:39		05:27				04:42		
	16:15	40	14:50 (1.2)		17:20		18:22	37	17:10 (1.1)	20:27		21:29				22:19		
11	09:01		14:09 (1.2)	08:09			07:00		16:34 (1.1)	06:37		05:25				04:41		
	16:17	40	14:49 (1.2)		17:22		18:24	35	17:09 (1.1)	20:29		21:31				22:20		
12	09:00		14:10 (1.2)	08:07			06:57		16:35 (1.1)	06:34		05:23				04:41		
	16:19	40	14:50 (1.2)		17:24		18:26	33	17:08 (1.1)	20:31		21:33				22:21		
13	08:59		14:10 (1.2)	08:05			06:54		16:36 (1.1)	06:32		05:21				04:40		
	16:20	41	14:51 (1.2)		17:27		18:28	31	17:07 (1.1)	20:33		21:35				22:22		
14	08:58		14:11 (1.2)	08:02			06:52		16:37 (1.1)	06:29		05:19				04:40		
	16:22	41	14:52 (1.2)		17:29		18:30	28	17:05 (1.1)	20:35		21:37				22:22		
15	08:57		14:11 (1.2)	08:00			06:49		16:38 (1.1)	06:26		05:17				04:40		
	16:24	41	14:52 (1.2)		17:31		18:32	24	17:02 (1.1)	20:37		21:39				22:23		
16	08:55		14:12 (1.2)	07:58			06:46		16:41 (1.1)	06:24		05:15				04:39		
	16:26	40	14:52 (1.2)		17:33		18:34	19	17:00 (1.1)	20:39		21:41				22:24		
17	08:54		14:12 (1.2)	07:55			06:44		16:45 (1.1)	06:21		05:13				04:39		
	16:28	40	14:52 (1.2)		17:36		18:37	11	16:56 (1.1)	20:41		21:43				22:24		
18	08:53		14:13 (1.2)	07:53			06:41			06:19		05:11				04:39		
	16:30	40	14:53 (1.2)		17:38		18:39			20:44		21:45				22:25		
19	08:52		14:13 (1.2)	07:51			06:38		18:07 (1.3)	06:16		05:09				04:39		
	16:32	40	14:53 (1.2)		17:40		18:41	6	18:13 (1.3)	20:46		21:47				22:25		
20	08:50		14:13 (1.2)	07:48		16:49 (1.1)	06:36		18:05 (1.3)	06:14		05:07				04:39		
	16:34	40	14:53 (1.2)		17:42	12	17:01 (1.1)	18:43		18:15 (1.3)	20:48		21:48			22:25		
21	08:49		14:14 (1.2)	07:46			06:33		18:03 (1.3)	06:11		05:06				04:39		
	16:36	40	14:54 (1.2)		17:44	19	17:04 (1.1)	18:45		18:17 (1.3)	20:50		21:50			22:26		
22	08:47		14:14 (1.2)	07:43			06:30		18:02 (1.3)	06:09		05:04				04:39		
	16:38	39	14:53 (1.2)		17:47	24	17:06 (1.1)	18:47		18:18 (1.3)	20:52		21:52			22:26		
23	08:46		14:15 (1.2)	07:41			06:28		18:01 (1.3)	06:06		05:02				04:40		
	16:40	38	14:53 (1.2)		17:49	27	17:08 (1.1)	18:49		18:21 (1.3)	20:54		21:54			22:26		
24	08:44		14:15 (1.2)	07:38			06:25		18:01 (1.3)	06:04		05:01				04:40		
	16:42	38	14:53 (1.2)		17:51	30	17:09 (1.1)	18:51		18:22 (1.3)	20:56		21:56			22:26		
25	08:43		14:16 (1.2)	07:36			06:22		18:00 (1.3)	06:01		04:59				04:40		
	16:44	37	14:53 (1.2)		17:53	33	17:11 (1.1)	18:53		18:22 (1.3)	20:58		21:57			22:26		
26	08:41		14:17 (1.2)	07:33			06:19		18:00 (1.3)	05:59		04:58				04:41		
	16:46	35	14:52 (1.2)		17:56	35	17:11 (1.1)	18:55		18:22 (1.3)	21:00		21:59			22:26		
27	08:39		14:18 (1.2)	07:31			06:17		18:00 (1.3)	05:56		04:56				04:41		
	16:49	34	14:52 (1.2)		17:58	37	17:12 (1.1)	18:58		18:21 (1.3)	21:02		22:01			22:26		
28	08:37		14:19 (1.2)	07:28			06:14		18:00 (1.3)	05:54		04:55				04:42		
	16:51	32	14:51 (1.2)		18:00	38	17:13 (1.1)	19:00		18:19 (1.3)	21:04		22:02			22:26		
29	08:36		14:20 (1.2)				07:11		19:02 (1.3)	05:52		04:54				04:42		
	16:53	31	14:51 (1.2)				20:02		19:19 (1.3)	21:07		22:04				22:25		
30	08:34		14:21 (1.2)				07:09		19:03 (1.3)	05:49		04:52				04:43		
	16:55	29	14:50 (1.2)				20:04		19:17 (1.3)	21:09		22:05				22:25		
31	08:32		14:23 (1.2)				07:06		19:05 (1.3)			04:51						
	16:57	26	14:49 (1.2)				20:06		19:13 (1.3)			22:07						
Potential sun hours		235			266		366			426		508				529		
Total, worst case			1166			310		785										
Sun reduction			0.18			0.32		0.40										
Oper. time red.			0.99			0.99		0.99										
Wind dir. red.			0.66			0.67		0.67										
Total reduction			0.12			0.21		0.26										
Total, real			135			66		207										

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Dimanti - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (101)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:32	07:32	17:15 (1.1)	07:38
	22:25	21:43	20:29	19:08	32	17:47 (1.1)
2	04:45	05:32	06:34	07:34	17:13 (1.1)	07:40
	22:24	21:41	20:26	19:06	34	17:47 (1.1)
3	04:46	05:34	06:36	07:36	17:12 (1.1)	07:42
	22:24	21:39	20:24	19:03	36	17:48 (1.1)
4	04:47	05:36	06:38	07:38	17:10 (1.1)	07:44
	22:23	21:37	20:21	19:00	38	17:48 (1.1)
5	04:48	05:38	06:40	07:40	17:09 (1.1)	07:47
	22:22	21:35	20:18	18:58	39	17:48 (1.1)
6	04:49	05:40	06:42	07:42	17:09 (1.1)	07:49
	22:22	21:33	20:16	18:55	39	17:48 (1.1)
7	04:50	05:42	06:44	07:44	17:08 (1.1)	07:51
	22:21	21:30	20:13	18:52	40	17:48 (1.1)
8	04:51	05:44	06:46	07:47	17:07 (1.1)	07:53
	22:20	21:28	20:10	18:50	41	17:48 (1.1)
9	04:52	05:46	06:48	07:49	17:08 (1.1)	07:55
	22:19	21:26	20:08	18:47	40	17:48 (1.1)
10	04:53	05:48	06:50	07:51	17:07 (1.1)	07:57
	22:18	21:24	20:05	18:44	41	17:48 (1.1)
11	04:55	05:50	06:52	07:53	17:07 (1.1)	08:00
	22:17	21:21	20:02	18:42	40	17:47 (1.1)
12	04:56	05:52	06:54	18:57 (1.3)	07:55	17:07 (1.1)
	22:16	21:19	20:00	8	19:05 (1.3)	18:39
13	04:57	05:54	06:56	18:54 (1.3)	07:57	17:07 (1.1)
	22:15	21:17	19:57	14	19:08 (1.3)	18:37
14	04:59	05:56	06:58	18:52 (1.3)	07:59	17:08 (1.1)
	22:13	21:14	19:54	17	19:09 (1.3)	18:34
15	05:00	05:58	07:00	18:51 (1.3)	08:01	17:08 (1.1)
	22:12	21:12	19:52	19	19:10 (1.3)	18:32
16	05:02	06:00	07:02	18:50 (1.3)	08:03	17:09 (1.1)
	22:11	21:10	19:49	20	19:10 (1.3)	18:29
17	05:03	06:02	07:04	18:49 (1.3)	08:05	17:09 (1.1)
	22:09	21:07	19:46	21	19:10 (1.3)	18:26
18	05:05	06:04	07:06	18:47 (1.3)	08:07	17:10 (1.1)
	22:08	21:05	19:43	22	19:09 (1.3)	18:24
19	05:07	06:06	07:08	18:47 (1.3)	08:10	17:12 (1.1)
	22:07	21:02	19:41	22	19:09 (1.3)	18:21
20	05:08	06:08	07:10	18:47 (1.3)	08:12	17:14 (1.1)
	22:05	21:00	19:38	20	19:07 (1.3)	18:19
21	05:10	06:10	07:12	18:47 (1.3)	08:14	17:16 (1.1)
	22:03	20:57	19:35	18	19:05 (1.3)	18:16
22	05:12	06:12	07:14	18:47 (1.3)	08:16	17:21 (1.1)
	22:02	20:55	19:33	15	19:02 (1.3)	18:14
23	05:13	06:14	07:16	18:48 (1.3)	08:18	17:20 (1.1)
	22:00	20:52	19:30	11	18:59 (1.3)	18:11
24	05:15	06:16	07:18	18:49 (1.3)	08:20	17:22 (1.1)
	21:58	20:50	19:27	7	18:56 (1.3)	18:09
25	05:17	06:18	07:20	18:52 (1.3)	07:23	18:09
	21:57	20:47	19:24	2	18:54 (1.3)	17:07
26	05:19	06:20	07:22	17:29 (1.1)	07:25	18:06
	21:55	20:45	19:22	6	17:35 (1.1)	17:04
27	05:20	06:22	07:24	17:23 (1.1)	07:27	18:06
	21:53	20:42	19:19	17	17:40 (1.1)	17:02
28	05:22	06:24	07:26	17:21 (1.1)	07:29	18:06
	21:51	20:39	19:16	22	17:43 (1.1)	17:00
29	05:24	06:26	07:28	17:18 (1.1)	07:31	18:06
	21:49	20:37	19:14	27	17:45 (1.1)	16:57
30	05:26	06:28	07:30	17:16 (1.1)	07:33	18:06
	21:47	20:34	19:11	30	17:46 (1.1)	16:55
31	05:28	06:30			07:36	
	21:45	20:32			16:53	
Potential sun hours	530	470	385	323	247	215
Total, worst case			318	741	801	1136
Sun reduction			0.46	0.31	0.16	0.10
Oper. time red.			0.99	0.99	0.99	0.99
Wind dir. red.			0.67	0.68	0.66	0.66
Total reduction			0.30	0.21	0.10	0.07
Total, real			96	152	81	76

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

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

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VPSP wind farm

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Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Dzeni - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (51)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:33	07:38	08:40
	16:03	17:00	18:03	20:08	21:11	22:09	22:25	21:44	20:29	19:09	16:51	16:00
2	09:06	08:28	07:24	07:01	05:45	04:49	04:45	05:32	06:34	07:35	07:40	08:42
	16:04	17:02	18:05	20:10	21:13	22:10	22:25	21:42	20:27	19:06	16:49	15:59
3	09:06	08:26	07:21	06:58	05:43	04:48	04:46	05:34	06:36	07:37	07:43	08:43
	16:05	17:04	18:07	20:13	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:58
4	09:06	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:39	07:45	08:45
	16:06	17:07	18:09	20:15	21:17	22:13	22:23	21:37	20:21	19:01	16:44	15:57
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:08	17:09	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:11	06:48	05:34	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:11	17:13	18:16	20:21	21:23	22:16	22:21	21:31	20:13	18:53	16:38	15:55
8	09:03	08:16	07:08	06:45	05:31	04:44	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:16	18:18	20:23	21:25	22:17	22:20	21:29	20:11	18:50	16:36	15:54
9	09:03	08:14	07:05	06:42	05:29	04:43	04:53	05:46	06:48	07:49	07:56	08:53
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34	15:54
10	09:02	08:12	07:03	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:58	08:54
	16:16	17:20	18:22	20:27	21:30	22:19	22:18	21:24	20:05	18:45	16:32	15:53
11	09:01	08:10	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:32	22:20	22:17	21:22	20:03	18:42	16:30	15:53
12	09:00	08:07	06:57	06:35	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:40	16:28	15:53
13	08:59	08:05	06:55	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:23	17:29	18:31	20:36	21:37	22:23	22:14	21:15	19:55	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:02	08:09	09:00
	16:24	17:31	18:33	20:38	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:40	05:02	06:00	07:02	08:04	08:11	09:01
	16:26	17:34	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:55	07:56	06:44	06:22	05:13	04:40	05:04	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:25	22:10	21:08	19:47	18:27	16:19	15:52
18	08:53	07:53	06:41	06:19	05:11	04:40	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:39	06:17	05:10	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:03	19:41	18:22	16:15	15:53
20	08:51	07:49	06:36	06:14	05:08	04:40	05:09	06:08	07:10	08:12	08:19	09:04
	16:34	17:43	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:12	05:06	04:40	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:36	18:17	16:12	15:53
22	08:48	07:44	06:31	06:09	05:04	04:40	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:11	15:54
23	08:46	07:41	06:28	06:07	05:03	04:40	05:14	06:14	07:16	08:19	08:25	09:05
	16:40	17:49	18:50	20:54	21:54	22:26	22:00	20:53	19:30	18:12	16:09	15:54
24	08:45	07:39	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:43	17:52	18:52	20:56	21:56	22:26	21:59	20:50	19:28	18:09	16:08	15:55
25	08:43	07:36	06:23	06:02	05:00	04:41	05:17	06:18	07:20	07:23	08:29	09:06
	16:45	17:54	18:54	20:59	21:58	22:26	21:57	20:48	19:25	17:07	16:06	15:56
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:07
	16:47	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:05	16:05	15:56
27	08:40	07:31	06:17	05:57	04:57	04:42	05:21	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:29	06:15	05:54	04:55	04:42	05:23	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:17	17:00	16:03	15:58
29	08:36		07:12	05:52	04:54	04:43	05:25	06:26	07:28	07:32	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:50	20:37	19:14	16:58	16:02	15:59
30	08:34		07:09	05:50	04:53	04:44	05:26	06:28	07:30	07:34	08:38	09:07
	16:56		20:04	21:09	22:06	22:25	21:48	20:35	19:11	16:55	16:01	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:58		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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Idle start wind speed: Cut in wind speed from power curve

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

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Dikenieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (49)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:33	07:38	08:40
	16:03	17:00	18:03	20:08	21:11	22:08	22:25	21:44	20:29	19:09	16:51	16:00
2	09:06	08:28	07:24	07:01	05:45	04:49	04:45	05:32	06:34	07:35	07:40	08:42
	16:04	17:02	18:05	20:10	21:13	22:10	22:24	21:41	20:27	19:06	16:49	15:59
3	09:06	08:26	07:21	06:58	05:43	04:48	04:46	05:34	06:36	07:37	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:58
4	09:06	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:39	07:45	08:45
	16:07	17:07	18:09	20:15	21:17	22:12	22:23	21:37	20:21	19:01	16:44	15:57
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:08	17:09	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:11	06:48	05:34	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:11	17:13	18:16	20:21	21:23	22:16	22:21	21:31	20:13	18:53	16:38	15:55
8	09:03	08:16	07:08	06:45	05:32	04:44	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:16	18:18	20:23	21:25	22:17	22:20	21:29	20:11	18:50	16:36	15:54
9	09:03	08:14	07:05	06:43	05:29	04:43	04:53	05:46	06:48	07:49	07:56	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34	15:54
10	09:02	08:12	07:03	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:58	08:54
	16:16	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:32	15:53
11	09:01	08:09	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:30	15:53
12	09:00	08:07	06:57	06:35	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:40	16:28	15:53
13	08:59	08:05	06:55	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:53
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:23	17:29	18:31	20:35	21:37	22:23	22:14	21:15	19:55	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:01	08:08	09:00
	16:25	17:32	18:33	20:38	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:40	05:02	06:00	07:02	08:04	08:11	09:01
	16:26	17:34	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:21	15:52
17	08:54	07:56	06:44	06:22	05:13	04:40	05:04	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:27	16:19	15:52
18	08:53	07:53	06:41	06:19	05:12	04:40	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:53
19	08:52	07:51	06:39	06:17	05:10	04:40	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:03	19:41	18:22	16:15	15:53
20	08:50	07:48	06:36	06:14	05:08	04:40	05:09	06:08	07:10	08:12	08:19	09:04
	16:34	17:43	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:12	05:06	04:40	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:36	18:17	16:12	15:53
22	08:48	07:44	06:31	06:09	05:05	04:40	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:11	15:54
23	08:46	07:41	06:28	06:07	05:03	04:40	05:14	06:14	07:16	08:19	08:25	09:05
	16:40	17:49	18:50	20:54	21:54	22:26	22:00	20:53	19:30	18:12	16:09	15:54
24	08:44	07:39	06:25	06:04	05:01	04:40	05:16	06:16	07:18	08:21	08:27	09:06
	16:43	17:52	18:52	20:56	21:56	22:26	21:59	20:50	19:28	18:09	16:08	15:55
25	08:43	07:36	06:23	06:02	05:00	04:41	05:17	06:18	07:20	07:23	08:29	09:06
	16:45	17:54	18:54	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:07	15:56
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:47	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:05	16:05	15:56
27	08:39	07:31	06:17	05:57	04:57	04:42	05:21	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:29	06:15	05:54	04:55	04:42	05:23	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:17	17:00	16:03	15:58
29	08:36		07:12	05:52	04:54	04:43	05:25	06:26	07:28	07:32	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:58	16:02	15:59
30	08:34		07:09	05:50	04:53	04:44	05:27	06:28	07:30	07:34	08:38	09:07
	16:56		20:04	21:09	22:06	22:25	21:48	20:35	19:11	16:55	16:01	16:00
31	08:32		07:06		04:52		05:28	06:30		07:36		09:07
	16:58		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Dukas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (89)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:20	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:37	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:22	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:31	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:23	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:50	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:25	08:30	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:57
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:06	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:06
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Eziš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (85)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:38	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:06
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Grantskalni - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (60)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:47	04:46	05:36	06:38	07:38	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:13	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:47
	16:07	17:09	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:35	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:55	08:52
	16:13	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:02	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:11	09:01
	16:26	17:33	18:35	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:50	22:26	22:04	20:57	19:35	18:16	16:12	15:53
22	08:48	07:43	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:56	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:06	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Gudrupji - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (91)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:20	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:38	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:22	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:48	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:31	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:50	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:16	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:25	08:30	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:06	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ievkalni (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (70)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:02	08:30 16:59	07:26 18:02	07:03 20:08	05:47 21:11	04:50 22:08	04:44 22:25	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:50	08:40 15:59
2	09:06 16:03	08:28 17:02	07:23 18:04	07:01 20:10	05:44 21:13	04:49 22:10	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:42 15:58
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	04:47 22:11	04:43 22:24	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:57
4	09:05 16:06	08:24 17:06	07:18 18:09	06:55 20:14	05:40 21:17	04:46 22:12	04:46 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:45 15:56
5	09:05 16:07	08:22 17:08	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:14	04:47 22:23	05:38 21:35	06:40 20:18	07:40 18:58	07:47 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:35 21:21	04:45 22:15	04:48 22:22	05:40 21:33	06:42 20:16	07:42 18:55	07:49 16:39	08:48 15:55
7	09:04 16:10	08:18 17:13	07:10 18:15	06:47 20:21	05:33 21:23	04:44 22:16	04:50 22:21	05:42 21:31	06:44 20:13	07:44 18:52	07:51 16:37	08:49 15:54
8	09:03 16:12	08:16 17:15	07:08 18:17	06:45 20:23	05:31 21:25	04:43 22:17	04:51 22:20	05:43 21:28	06:46 20:10	07:47 18:50	07:53 16:35	08:51 15:54
9	09:02 16:13	08:14 17:17	07:05 18:19	06:42 20:25	05:29 21:27	04:42 22:18	04:52 22:19	05:45 21:26	06:48 20:08	07:49 18:47	07:55 16:33	08:52 15:53
10	09:02 16:15	08:11 17:20	07:02 18:22	06:39 20:27	05:27 21:29	04:42 22:19	04:53 22:18	05:47 21:24	06:50 20:05	07:51 18:44	07:58 16:31	08:54 15:53
11	09:01 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:41 22:20	04:55 22:17	05:49 21:22	06:52 20:02	07:53 18:42	08:00 16:29	08:55 15:52
12	09:00 16:19	08:07 17:24	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:21	04:56 22:16	05:51 21:19	06:54 20:00	07:55 18:39	08:02 16:27	08:56 15:52
13	08:59 16:20	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:40 22:22	04:57 22:15	05:53 21:17	06:56 19:57	07:57 18:37	08:04 16:25	08:57 15:52
14	08:58 16:22	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:23	04:59 22:14	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:57 16:24	08:00 17:31	06:49 18:32	06:26 20:37	05:17 21:39	04:39 22:23	05:00 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:56 16:26	07:58 17:33	06:46 18:34	06:24 20:39	05:15 21:41	04:39 22:24	05:02 22:11	06:00 21:10	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:41	05:13 21:43	04:39 22:24	05:03 22:10	06:02 21:07	07:04 19:46	08:05 18:26	08:13 16:18	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:44	05:11 21:45	04:39 22:25	05:05 22:08	06:04 21:05	07:06 19:43	08:08 18:24	08:15 16:17	09:02 15:52
19	08:52 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:09 21:47	04:39 22:25	05:06 22:07	06:06 21:02	07:08 19:41	08:10 18:21	08:17 16:15	09:03 15:52
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:07 21:49	04:39 22:26	05:08 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:19 16:13	09:04 15:52
21	08:49 16:36	07:46 17:44	06:33 18:45	06:11 20:50	05:06 21:50	04:39 22:26	05:10 22:04	06:10 20:57	07:12 19:35	08:14 18:16	08:21 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:39 22:26	05:11 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:10	09:05 15:53
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:02 21:54	04:39 22:26	05:13 22:00	06:14 20:52	07:16 19:30	08:18 18:11	08:25 16:09	09:05 15:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:56	04:40 22:26	05:15 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:07	09:06 15:54
25	08:43 16:44	07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57	04:40 22:26	05:17 21:57	06:18 20:47	07:20 19:24	07:23 17:07	08:29 16:06	09:06 15:55
26	08:41 16:46	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	07:25 17:04	08:31 16:05	09:06 15:56
27	08:39 16:48	07:31 17:58	06:17 18:58	05:56 21:02	04:56 22:01	04:41 22:26	05:20 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:33 16:03	09:07 15:57
28	08:38 16:51	07:28 18:00	06:14 19:00	05:54 21:05	04:55 22:02	04:42 22:26	05:22 21:51	06:24 20:40	07:26 19:16	07:29 17:00	08:34 16:02	09:07 15:58
29	08:36 16:53		07:11 20:02	05:51 21:07	04:53 22:04	04:42 22:26	05:24 21:49	06:26 20:37	07:28 19:14	07:31 16:57	08:36 16:01	09:07 15:58
30	08:34 16:55		07:09 20:04	05:49 21:09	04:52 22:05	04:43 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:00	09:07 16:00
31	08:32 16:57		07:06 20:06	04:51 22:07	04:51 22:07		05:28 21:45	06:30 20:32		07:36 16:53		09:07 16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ievnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (87)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06	14:55 (1.2.)	08:30	07:26	07:03	05:47
	16:02	22	15:17 (1.2.)	16:59	18:02	20:08
2	09:06	14:55 (1.2.)	08:28	07:23	07:01	05:44
	16:03	22	15:17 (1.2.)	17:02	18:04	20:10
3	09:06	14:56 (1.2.)	08:26	16:25 (1.1.)	07:21	06:58
	16:05	22	15:18 (1.2.)	17:04	4	16:29 (1.1.)
4	09:05	14:56 (1.2.)	08:24	16:24 (1.1.)	07:18	06:55
	16:06	22	15:18 (1.2.)	17:06	8	16:32 (1.1.)
5	09:05	14:56 (1.2.)	08:22	16:24 (1.1.)	07:15	06:53
	16:07	23	15:19 (1.2.)	17:08	11	16:35 (1.1.)
6	09:04	14:57 (1.2.)	08:20	16:23 (1.1.)	07:13	06:50
	16:09	23	15:20 (1.2.)	17:11	14	16:37 (1.1.)
7	09:04	14:57 (1.2.)	08:18	16:22 (1.1.)	07:10	06:47
	16:10	23	15:20 (1.2.)	17:13	17	16:39 (1.1.)
8	09:03	14:58 (1.2.)	08:16	16:22 (1.1.)	07:08	06:45
	16:12	22	15:20 (1.2.)	17:15	20	16:42 (1.1.)
9	09:02	14:58 (1.2.)	08:14	16:22 (1.1.)	07:05	06:42
	16:13	23	15:21 (1.2.)	17:17	22	16:44 (1.1.)
10	09:02	14:59 (1.2.)	08:11	16:21 (1.1.)	07:02	06:39
	16:15	22	15:21 (1.2.)	17:20	23	16:44 (1.1.)
11	09:01	15:00 (1.2.)	08:09	16:22 (1.1.)	07:00	06:37
	16:17	22	15:22 (1.2.)	17:22	22	16:44 (1.1.)
12	09:00	14:59 (1.2.)	08:07	16:22 (1.1.)	06:57	06:34
	16:19	22	15:21 (1.2.)	17:24	22	16:44 (1.1.)
13	08:59	15:00 (1.2.)	08:05	16:23 (1.1.)	06:54	06:32
	16:20	21	15:21 (1.2.)	17:27	21	16:44 (1.1.)
14	08:58	15:01 (1.2.)	08:02	16:24 (1.1.)	06:52	06:29
	16:22	21	15:22 (1.2.)	17:29	19	16:43 (1.1.)
15	08:57	15:02 (1.2.)	08:00	16:24 (1.1.)	06:49	06:26
	16:24	19	15:21 (1.2.)	17:31	18	16:42 (1.1.)
16	08:55	15:03 (1.2.)	07:58	16:26 (1.1.)	06:46	06:24
	16:26	19	15:22 (1.2.)	17:33	15	16:41 (1.1.)
17	08:54	15:03 (1.2.)	07:55	16:27 (1.1.)	06:44	06:21
	16:28	18	15:21 (1.2.)	17:36	12	16:39 (1.1.)
18	08:53	15:05 (1.2.)	07:53	16:32 (1.1.)	06:41	06:19
	16:30	16	15:21 (1.2.)	17:38	4	16:36 (1.1.)
19	08:52	15:06 (1.2.)	07:51	06:38	06:16	05:09
	16:32	14	15:20 (1.2.)	17:40	18:41	20:46
20	08:50	15:08 (1.2.)	07:48	06:36	06:14	05:07
	16:34	10	15:18 (1.2.)	17:42	18:43	20:48
21	08:49	15:11 (1.2.)	07:46	06:33	06:11	05:06
	16:36	6	15:17 (1.2.)	17:44	18:45	20:50
22	08:47		07:43	06:30	06:09	05:04
	16:38		17:47	18:47	20:52	21:52
23	08:46		07:41	06:28	06:06	05:02
	16:40		17:49	18:49	20:54	21:54
24	08:44		07:38	06:25	06:04	05:01
	16:42		17:51	18:51	20:56	21:56
25	08:43		07:36	06:22	06:01	04:59
	16:44		17:53	18:53	20:58	21:57
26	08:41		07:33	06:19	05:59	04:58
	16:46		17:56	18:55	21:00	21:59
27	08:39		07:31	06:17	05:56	04:56
	16:48		17:58	18:57	21:02	22:01
28	08:37		07:28	06:14	05:54	04:55
	16:51		18:00	19:00	21:04	22:02
29	08:36			07:11	05:51	04:53
	16:53			20:02	21:07	22:04
30	08:34			07:09	05:49	04:52
	16:55			20:04	21:09	22:05
31	08:32			07:06		04:51
	16:57			20:06		22:07
Potential sun hours	235	266	366	426	508	530
Total, worst case	412	252				
Sun reduction	0.18	0.32				
Oper. time red.	0.99	0.99				
Wind dir. red.	0.66	0.67				
Total reduction	0.12	0.21				
Total, real	47	54				

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ievnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (87)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:32	07:32	07:38	15:51 (1.1.)
	22:25	21:43	20:29	19:08	16:50	23 16:14 (1.1.)
2	04:45	05:32	06:34	07:34	07:40	15:52 (1.1.)
	22:24	21:41	20:26	19:06	16:48	22 16:14 (1.1.)
3	04:46	05:34	06:36	07:36	07:42	15:52 (1.1.)
	22:24	21:39	20:24	19:03	16:46	19 16:11 (1.1.)
4	04:46	05:36	06:38	07:38	07:44	15:52 (1.1.)
	22:23	21:37	20:21	19:00	16:44	17 16:09 (1.1.)
5	04:47	05:38	06:40	07:40	07:47	15:53 (1.1.)
	22:22	21:35	20:18	18:58	16:42	14 16:07 (1.1.)
6	04:49	05:40	06:42	07:42	07:49	15:53 (1.1.)
	22:22	21:33	20:16	18:55	16:39	11 16:04 (1.1.)
7	04:50	05:41	06:44	07:44	07:51	15:55 (1.1.)
	22:21	21:30	20:13	18:52	16:37	7 16:02 (1.1.)
8	04:51	05:43	06:46	07:46	07:53	15:56 (1.1.)
	22:20	21:28	20:10	18:50	16:35	4 16:00 (1.1.)
9	04:52	05:45	06:48	07:49	07:55	08:52
	22:19	21:26	20:08	18:47	16:33	15:53
10	04:53	05:47	06:50	07:51	07:57	08:54
	22:18	21:24	20:05	18:44	16:31	15:53
11	04:55	05:49	06:52	07:53	08:00	08:55
	22:17	21:21	20:02	18:42	16:29	15:52
12	04:56	05:51	06:54	07:55	08:02	08:56
	22:16	21:19	20:00	18:39	16:27	15:52
13	04:57	05:53	06:56	07:57	08:04	08:57
	22:15	21:17	19:57	18:37	16:25	15:52
14	04:59	05:55	06:58	07:59	08:06	08:58
	22:13	21:14	19:54	18:34	16:24	15:52
15	05:00	05:57	07:00	08:01	08:08	08:59
	22:12	21:12	19:52	18:31	16:22	15:52
16	05:02	06:00	07:02	08:03	08:10	09:00
	22:11	21:10	19:49	18:29	16:20	15:52
17	05:03	06:02	07:04	08:05	08:12	09:01
	22:09	21:07	19:46	18:26	16:18	15:52
18	05:05	06:04	07:06	08:07	08:14	09:02
	22:08	21:05	19:43	18:24	16:17	15:52
19	05:06	06:06	07:08	08:10	08:17	09:03
	22:07	21:02	19:41	18:21	16:15	15:52
20	05:08	06:08	07:10	08:12	08:19	09:03
	22:05	21:00	19:38	18:19	16:13	15:52
21	05:10	06:10	07:12	08:14	08:21	14:46 (1.2.)
	22:03	20:57	19:35	18:16	16:12	6 14:52 (1.2.)
22	05:11	06:12	07:14	08:16	08:23	14:44 (1.2.)
	22:02	20:55	19:33	18:14	16:10	10 14:54 (1.2.)
23	05:13	06:14	07:16	08:18	08:25	14:43 (1.2.)
	22:00	20:52	19:30	18:11	16:09	14 14:57 (1.2.)
24	05:15	06:16	07:18	08:20	16:59 (1.1.)	08:27
	21:58	20:50	19:27	18:09	7 17:06 (1.1.)	16:07
25	05:17	06:18	07:20	07:22	15:57 (1.1.)	08:29
	21:57	20:47	19:24	17:07	13 16:10 (1.1.)	16:06
26	05:19	06:20	07:22	07:25	15:55 (1.1.)	08:31
	21:55	20:45	19:22	17:04	16 16:11 (1.1.)	16:05
27	05:20	06:22	07:24	07:27	15:53 (1.1.)	08:32
	21:53	20:42	19:19	17:02	19 16:12 (1.1.)	16:03
28	05:22	06:24	07:26	07:29	15:53 (1.1.)	08:34
	21:51	20:39	19:16	16:59	20 16:13 (1.1.)	16:02
29	05:24	06:26	07:28	07:31	15:52 (1.1.)	08:36
	21:49	20:37	19:14	16:57	21 16:13 (1.1.)	16:01
30	05:26	06:28	07:30	07:33	15:51 (1.1.)	08:38
	21:47	20:34	19:11	16:55	22 16:13 (1.1.)	16:00
31	05:28	06:30		07:36	15:51 (1.1.)	09:06
	21:45	20:32		16:53	23 16:14 (1.1.)	16:01
Potential sun hours	530	470	385	323	247	215
Total, worst case				141	283	651
Sun reduction				0.31	0.16	0.10
Oper. time red.				0.99	0.99	0.99
Wind dir. red.				0.67	0.66	0.66
Total reduction				0.20	0.10	0.07
Total, real				29	29	44

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Irbenieki (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (59)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:09	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:25	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:47	04:46	05:36	06:38	07:38	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:13	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:47
	16:07	17:09	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:35	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:55	08:52
	16:13	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:02	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:55	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:11	09:01
	16:26	17:33	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:25	22:10	21:07	19:46	18:27	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:35	18:16	16:12	15:53
22	08:48	07:43	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:39	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:58	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:07
	16:46	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:06	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	234	266	366	426	509	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Irbes - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (97)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:02	08:30 16:59	07:26 18:02	07:03 20:08	05:47 21:11	04:50 22:08
2	09:06 16:03	08:28 17:02	07:23 18:04	07:01 20:10	05:44 21:13	04:49 22:10
3	09:06 16:05	08:26 17:04	07:21 18:06	06:58 20:12	05:42 21:15	04:48 22:11
4	09:05 16:06	08:24 17:06	16:25 (1.2.) 16:32 (1.2.)	07:18 18:09	06:55 20:14	05:40 21:17
5	09:05 16:07	08:22 17:08	16:22 (1.2.) 16:35 (1.2.)	07:15 18:11	06:53 20:16	05:38 21:19
6	09:04 16:09	08:20 17:11	16:21 (1.2.) 16:38 (1.2.)	07:13 18:13	06:50 20:18	05:35 21:21
7	09:04 16:10	08:18 17:13	16:19 (1.2.) 16:39 (1.2.)	07:10 18:15	06:47 20:20	05:33 21:23
8	09:03 16:12	08:16 17:15	16:18 (1.2.) 16:41 (1.2.)	07:08 18:17	17:41 (1.1.) 17:48 (1.1.)	06:45 20:23
9	09:02 16:13	08:14 17:17	16:18 (1.2.) 16:42 (1.2.)	07:05 18:19	17:40 (1.1.) 17:51 (1.1.)	06:42 20:25
10	09:01 16:15	08:11 17:20	16:17 (1.2.) 16:42 (1.2.)	07:02 18:22	17:38 (1.1.) 17:53 (1.1.)	06:39 20:27
11	09:01 16:17	08:09 17:22	16:17 (1.2.) 16:43 (1.2.)	07:00 18:24	17:36 (1.1.) 17:55 (1.1.)	06:37 20:29
12	09:00 16:19	08:07 17:24	16:16 (1.2.) 16:43 (1.2.)	06:57 18:26	17:36 (1.1.) 17:58 (1.1.)	06:34 20:31
13	08:59 16:20	08:05 17:27	16:16 (1.2.) 16:44 (1.2.)	06:54 18:28	17:35 (1.1.) 17:58 (1.1.)	06:32 20:33
14	08:58 16:22	08:02 17:29	16:16 (1.2.) 16:44 (1.2.)	06:52 18:30	17:34 (1.1.) 17:58 (1.1.)	06:29 20:35
15	08:57 16:24	08:00 17:31	16:16 (1.2.) 16:44 (1.2.)	06:49 18:32	17:33 (1.1.) 17:57 (1.1.)	06:26 20:37
16	08:55 16:26	07:58 17:33	16:17 (1.2.) 16:44 (1.2.)	06:46 18:34	17:34 (1.1.) 17:58 (1.1.)	06:24 20:39
17	08:54 16:28	07:55 17:36	16:17 (1.2.) 16:43 (1.2.)	06:44 18:36	17:34 (1.1.) 17:57 (1.1.)	06:21 20:41
18	08:53 16:30	07:53 17:38	16:18 (1.2.) 16:43 (1.2.)	06:41 18:39	17:34 (1.1.) 17:55 (1.1.)	06:19 20:43
19	08:52 16:32	07:51 17:40	16:18 (1.2.) 16:41 (1.2.)	06:38 18:41	17:35 (1.1.) 17:55 (1.1.)	06:16 20:46
20	08:50 16:34	07:48 17:42	16:19 (1.2.) 16:40 (1.2.)	06:36 18:43	17:36 (1.1.) 17:53 (1.1.)	06:14 20:48
21	08:49 16:36	07:46 17:44	16:21 (1.2.) 16:39 (1.2.)	06:33 18:45	17:37 (1.1.) 17:51 (1.1.)	06:11 20:50
22	08:47 16:38	07:43 17:47	16:22 (1.2.) 16:36 (1.2.)	06:30 18:47	17:40 (1.1.) 17:47 (1.1.)	06:09 20:52
23	08:46 16:40	07:41 17:49	16:26 (1.2.) 16:34 (1.2.)	06:28 18:49	06:06 20:54	05:02 21:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26
25	08:42 16:44	07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57	04:40 22:26
26	08:41 16:46	07:33 17:56	06:19 18:55	05:59 21:00	04:58 21:59	04:41 22:26
27	08:39 16:48	07:31 17:58	06:17 18:57	05:56 21:02	04:56 22:01	04:41 22:26
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:26
29	08:36 16:53		07:11 20:02	05:51 21:06	04:53 22:04	04:42 22:25
30	08:34 16:55		07:09 20:04	05:49 21:09	04:52 22:05	04:43 22:25
31	08:32 16:57		07:06 20:06		04:51 22:07	
Potential sun hours	235	266	366	426	508	529
Total, worst case		428	271			
Sun reduction		0.32	0.40			
Oper. time red.		0.99	0.99			
Wind dir. red.		0.67	0.67			
Total reduction		0.21	0.26			
Total, real		92	71			

Table layout: For each day in each month the following 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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Irbes - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (97)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December		
1	04:44 22:25	05:30 21:43	06:32 20:29	07:32 19:08	18:14 (1.1.) 18:37 (1.1.)	07:38 16:50	15:46 (1.2.) 16:12 (1.2.)	08:40 15:59
2	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	23 20	18:15 (1.1.) 18:35 (1.1.)	07:40 16:48	15:48 (1.2.) 15:58
3	04:46 22:24	05:34 21:39	06:36 20:24	07:36 19:03	17	18:15 (1.1.) 18:32 (1.1.)	07:42 16:46	15:48 (1.2.) 15:57
4	04:46 22:23	05:36 21:37	06:38 20:21	07:38 19:00	13	18:16 (1.1.) 18:29 (1.1.)	07:44 16:44	15:49 (1.2.) 15:56
5	04:47 22:22	05:38 21:35	06:40 20:18	07:40 18:58	10	18:17 (1.1.) 18:27 (1.1.)	07:46 16:42	15:51 (1.2.) 15:56
6	04:49 22:22	05:40 21:33	06:42 20:16	07:42 18:55	4	18:20 (1.1.) 18:24 (1.1.)	07:49 16:39	15:52 (1.2.) 15:55
7	04:50 22:21	05:42 21:30	06:44 20:13	07:44 18:52		07:51 16:37	15:56 (1.2.) 16:02 (1.2.)	08:49 15:54
8	04:51 22:20	05:44 21:28	06:46 20:10	07:46 18:50		07:53 16:35		08:51 15:54
9	04:52 22:19	05:45 21:26	06:48 20:08	07:49 18:47		07:55 16:33		08:52 15:53
10	04:53 22:18	05:47 21:24	06:50 20:05	07:51 18:44		07:57 16:31		08:53 15:53
11	04:55 22:17	05:49 21:21	06:52 20:02	07:53 18:42		08:00 16:29		08:55 15:52
12	04:56 22:16	05:51 21:19	06:54 20:00	07:55 18:39		08:02 16:27		08:56 15:52
13	04:57 22:15	05:53 21:17	06:56 19:57	07:57 18:37		08:04 16:25		08:57 15:52
14	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34		08:06 16:24		08:58 15:52
15	05:00 22:12	05:58 21:12	07:00 19:51	08:01 18:31		08:08 16:22		08:59 15:52
16	05:02 22:11	06:00 21:10	07:02 19:49	08:03 18:29		08:10 16:20		09:00 15:52
17	05:03 22:09	06:02 21:07	07:04 19:46	08:05 18:26		08:12 16:18		09:01 15:52
18	05:05 22:08	06:04 21:05	07:06 19:43	08:07 18:24		08:14 16:17		09:02 15:52
19	05:06 22:06	06:06 21:02	07:08 19:41	08:10 18:21	10	16:56 (1.2.) 17:06 (1.2.)	08:17 16:15	09:03 15:52
20	05:08 22:05	06:08 21:00	07:10 19:38	08:12 18:19	16	16:52 (1.2.) 17:08 (1.2.)	08:19 16:13	09:03 15:53
21	05:10 22:03	06:10 20:57	07:12 19:35	18:28 (1.1.) 18:30 (1.1.)	08:14 20	16:50 (1.2.) 17:10 (1.2.)	08:21 16:12	09:04 15:53
22	05:12 22:02	06:12 20:55	07:14 19:33	18:23 (1.1.) 18:35 (1.1.)	08:16 22	16:49 (1.2.) 17:11 (1.2.)	08:23 16:10	09:05 15:53
23	05:13 22:00	06:14 20:52	07:16 19:30	18:20 (1.1.) 18:36 (1.1.)	08:18 24	16:48 (1.2.) 17:12 (1.2.)	08:25 16:09	09:05 15:54
24	05:15 21:58	06:16 20:50	07:18 19:27	18:18 (1.1.) 18:37 (1.1.)	08:20 25	16:47 (1.2.) 17:12 (1.2.)	08:27 16:07	09:06 15:54
25	05:17 21:57	06:18 20:47	07:20 19:24	18:17 (1.1.) 18:38 (1.1.)	07:22 26	15:47 (1.2.) 16:13 (1.2.)	08:29 16:06	09:06 15:55
26	05:19 21:55	06:20 20:45	07:22 19:22	18:16 (1.1.) 18:38 (1.1.)	07:25 27	15:46 (1.2.) 16:13 (1.2.)	08:31 16:05	09:06 15:56
27	05:20 21:53	06:22 20:42	07:24 19:19	18:15 (1.1.) 18:38 (1.1.)	07:27 28	15:45 (1.2.) 16:13 (1.2.)	08:32 16:03	09:06 15:57
28	05:22 21:51	06:24 20:39	07:26 19:16	18:14 (1.1.) 18:38 (1.1.)	07:29 28	15:46 (1.2.) 16:14 (1.2.)	08:34 16:02	09:06 15:58
29	05:24 21:49	06:26 20:37	07:28 19:14	18:15 (1.1.) 18:39 (1.1.)	07:31 27	15:46 (1.2.) 16:13 (1.2.)	08:36 16:01	09:07 15:59
30	05:26 21:47	06:28 20:34	07:30 19:11	18:14 (1.1.) 18:38 (1.1.)	07:33 27	15:45 (1.2.) 16:12 (1.2.)	08:38 16:00	09:07 16:00
31	05:28 21:45	06:30 20:32		07:36 16:53	27	15:46 (1.2.) 16:13 (1.2.)		09:06 16:01
Potential sun hours	530	470	385	323		247		215
Total, worst case			187	394		126		
Sun reduction			0.46	0.31		0.16		
Oper. time red.			0.99	0.99		0.99		
Wind dir. red.			0.67	0.67		0.67		
Total reduction			0.30	0.20		0.10		
Total, real			57	81		13		

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Jaundabes - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (15)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06	08:30	07:26	07:04	07:56 (2.2.)	05:47
2	16:03	17:00	18:02	20:08	08:16 (2.2.)	21:11
3	09:06	08:28	07:23	07:01	07:56 (2.2.)	05:45
4	16:04	17:02	18:05	20:10	08:14 (2.2.)	21:13
5	09:06	08:26	07:21	06:58	07:59 (2.2.)	05:43
6	16:05	17:04	18:07	20:12	08:12 (2.2.)	21:15
7	09:05	08:24	07:18	06:56	08:02 (2.2.)	05:40
8	16:07	17:07	18:09	20:14	08:08 (2.2.)	21:17
9	09:05	08:22	07:16	06:53		05:38
10	16:08	17:09	18:11	20:17		21:19
11	09:04	08:20	07:13	06:50		05:36
12	16:09	17:11	18:13	20:19		21:21
13	09:04	08:18	07:10	06:48		05:34
14	16:11	17:13	18:15	20:21		21:23
15	09:03	08:16	07:08	06:45		05:32
16	16:12	17:16	18:18	20:23		21:25
17	09:02	08:14	07:05	06:42		05:29
18	16:14	17:18	18:20	20:25		21:27
19	09:02	08:11	07:03	06:40		05:27
20	16:16	17:20	18:22	20:27		21:29
21	09:01	08:09	07:00	06:37		05:25
22	16:17	17:22	18:24	20:29		21:31
23	09:00	08:07	06:57	06:35		05:23
24	16:19	17:25	18:26	20:31		21:33
25	08:59	08:05	06:55	06:32		05:21
26	16:21	17:27	18:28	20:33		21:35
27	08:58	08:02	06:52	06:29		05:19
28	16:23	17:29	18:30	20:35		21:37
29	08:57	08:00	06:49	06:27		05:17
30	16:25	17:31	18:33	20:37		21:39
31	08:55	07:58	06:47	06:24		05:15
32	16:26	17:34	18:35	20:39		21:41
33	08:54	07:55	06:44	06:22		05:13
34	16:28	17:36	18:37	20:42		21:43
35	08:53	07:53	06:41	06:19		05:12
36	16:30	17:38	18:39	20:44		21:45
37	08:52	07:51	06:39	06:17		05:10
38	16:32	17:40	18:41	20:46		21:47
39	08:50	07:48	06:36	06:14		05:08
40	16:34	17:43	18:43	20:48		21:48
41	08:49	07:46	06:33	06:11		05:06
42	16:36	17:45	18:45	20:50		21:50
43	08:47	07:43	06:31	06:09		05:05
44	16:38	17:47	18:47	20:52		21:52
45	08:46	07:41	06:28	06:06		05:03
46	16:40	17:49	18:49	20:54		21:54
47	08:44	07:39	06:25	06:04		05:01
48	16:43	17:51	18:51	20:56		21:56
49	08:43	07:36	06:22	06:02		05:00
50	16:45	17:54	18:54	20:58		21:57
51	08:41	07:34	06:20	05:59		04:58
52	16:47	17:56	18:56	21:00		21:59
53	08:39	07:31	06:17	05:57		04:57
54	16:49	17:58	18:58	21:02		22:01
55	08:37	07:28	06:14	05:54		04:55
56	16:51	18:00	19:00	21:05		22:02
57	08:36		07:12	05:52		04:54
58	16:53		20:02	21:07		22:04
59	08:34		07:09	05:50	06:24 (4.6.)	04:53
60	16:56		20:04	21:09	06:31 (4.6.)	22:05
61	08:32		07:06	05:52		04:52
62	16:58		20:06	08:18 (2.2.)		22:07
Potential sun hours	235	266	366	426	508	529
Total, worst case			305	64	1291	149
Sun reduction			0.40	0.57	0.59	0.62
Oper. time red.			0.99	0.99	0.99	0.99
Wind dir. red.			0.65	0.66	0.68	0.68
Total reduction			0.26	0.37	0.39	0.41
Total, real			78	24	505	61

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Jaundabes - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (15)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July			August			September			October		November		December	
1	04:44			05:30		06:04 (2.3.)	06:32			07:32		07:38		08:40	
	22:25			21:43	43	06:54 (4.6.)	20:29			19:09		16:51		16:00	
2	04:45			05:32		06:06 (2.3.)	06:34			07:34		07:40		08:41	
	22:24			21:41	39	06:54 (4.6.)	20:27			19:06		16:49		15:59	
3	04:46			05:34		06:21 (4.6.)	06:36			07:36		07:42		08:43	
	22:24			21:39	33	06:54 (4.6.)	20:24			19:03		16:46		15:58	
4	04:47			05:36		06:21 (4.6.)	06:38			07:39		07:44		08:45	
	22:23			21:37	31	06:52 (4.6.)	20:21			19:01		16:44		15:57	
5	04:48		06:04 (2.3.)	05:38		06:21 (4.6.)	06:40			07:41		07:47		08:46	
	22:22	2	06:06 (2.3.)	21:35	31	06:52 (4.6.)	20:19			18:58		16:42		15:56	
6	04:49		06:01 (2.3.)	05:40		06:22 (4.6.)	06:42			07:43		07:49		08:48	
	22:22	6	06:07 (2.3.)	21:33	29	06:51 (4.6.)	20:16			18:55		16:40		15:55	
7	04:50		06:01 (2.3.)	05:42		06:23 (4.6.)	06:44			07:45		07:51		08:49	
	22:21	16	06:39 (4.6.)	21:31	28	06:51 (4.6.)	20:13			18:53		16:38		15:55	
8	04:51		06:00 (2.3.)	05:44		06:24 (4.6.)	06:46		07:57 (2.2.)	07:47		07:53		08:51	
	22:20	22	06:41 (4.6.)	21:28	26	06:50 (4.6.)	20:11	4	08:01 (2.2.)	18:50		16:36		15:54	
9	04:53		05:59 (2.3.)	05:46		06:25 (4.6.)	06:48		07:52 (2.2.)	07:49		07:55		08:52	
	22:19	26	06:42 (4.6.)	21:26	24	06:49 (4.6.)	20:08	13	08:05 (2.2.)	18:47		16:34		15:54	
10	04:54		05:58 (2.3.)	05:48		06:25 (4.6.)	06:50		07:50 (2.2.)	07:51		07:58		08:54	
	22:18	29	06:43 (4.6.)	21:24	22	06:47 (4.6.)	20:05	17	08:07 (2.2.)	18:45		16:32		15:53	
11	04:55		05:58 (2.3.)	05:50		06:27 (4.6.)	06:52		07:48 (2.2.)	07:53		08:00		08:55	
	22:17	32	06:44 (4.6.)	21:22	18	06:45 (4.6.)	20:03	21	08:09 (2.2.)	18:42		16:30		15:53	
12	04:57		05:57 (2.3.)	05:52		06:30 (4.6.)	06:54		07:47 (2.2.)	07:55		08:02		08:56	
	22:16	35	06:45 (4.6.)	21:19	13	06:43 (4.6.)	20:00	22	08:09 (2.2.)	18:40		16:28		15:53	
13	04:58		05:57 (2.3.)	05:54		06:35 (4.6.)	06:56		07:46 (2.2.)	07:57		08:04		08:57	
	22:15	39	06:47 (4.6.)	21:17	2	06:37 (4.6.)	19:57	24	08:10 (2.2.)	18:37		16:26		15:53	
14	04:59		05:57 (2.3.)	05:56			06:58		07:45 (2.2.)	07:59		08:06		08:58	
	22:13	40	06:47 (4.6.)	21:14			19:54	25	08:10 (2.2.)	18:34		16:24		15:52	
15	05:01		05:56 (2.3.)	05:58			07:00		07:44 (2.2.)	08:01		08:08		08:59	
	22:12	43	06:48 (4.6.)	21:12			19:52	26	08:10 (2.2.)	18:32		16:22		15:52	
16	05:02		05:56 (2.3.)	06:00			07:02		07:43 (2.2.)	08:03		08:10		09:00	
	22:11	45	06:49 (4.6.)	21:10			19:49	27	08:10 (2.2.)	18:29		16:20		15:52	
17	05:04		05:56 (2.3.)	06:02			07:04		07:43 (2.2.)	08:06		08:12		09:01	
	22:09	48	06:50 (4.6.)	21:07			19:46	27	08:10 (2.2.)	18:27		16:19		15:52	
18	05:05		05:55 (2.3.)	06:04			07:06		07:43 (2.2.)	08:08		08:15		09:02	
	22:08	49	06:50 (4.6.)	21:05			19:44	27	08:10 (2.2.)	18:24		16:17		15:53	
19	05:07		05:56 (2.3.)	06:06			07:08		07:43 (2.2.)	08:10		08:17		09:03	
	22:07	50	06:51 (4.6.)	21:02			19:41	26	08:09 (2.2.)	18:22		16:15		15:53	
20	05:09		05:55 (2.3.)	06:08			07:10		07:43 (2.2.)	08:12		08:19		09:03	
	22:05	51	06:51 (4.6.)	21:00			19:38	25	08:08 (2.2.)	18:19		16:14		15:53	
21	05:10		05:55 (2.3.)	06:10			07:12		07:43 (2.2.)	08:14		08:21		09:04	
	22:03	53	06:52 (4.6.)	20:57			19:36	24	08:07 (2.2.)	18:17		16:12		15:53	
22	05:12		05:55 (2.3.)	06:12			07:14		07:44 (2.2.)	08:16		08:23		09:05	
	22:02	53	06:52 (4.6.)	20:55			19:33	21	08:05 (2.2.)	18:14		16:11		15:54	
23	05:14		05:55 (2.3.)	06:14			07:16		07:45 (2.2.)	08:18		08:25		09:05	
	22:00	55	06:53 (4.6.)	20:52			19:30	19	08:04 (2.2.)	18:12		16:09		15:54	
24	05:16		05:56 (2.3.)	06:16			07:18		07:47 (2.2.)	08:21		08:27		09:06	
	21:58	55	06:54 (4.6.)	20:50			19:27	14	08:01 (2.2.)	18:09		16:08		15:55	
25	05:17		05:55 (2.3.)	06:18			07:20		07:50 (2.2.)	07:23		08:29		09:06	
	21:57	55	06:53 (4.6.)	20:47			19:25	7	07:57 (2.2.)	17:07		16:07		15:56	
26	05:19		05:56 (2.3.)	06:20			07:22			07:25		08:31		09:06	
	21:55	55	06:54 (4.6.)	20:45			19:22			17:05		16:05		15:56	
27	05:21		05:57 (2.3.)	06:22			07:24			07:27		08:32		09:06	
	21:53	54	06:54 (4.6.)	20:42			19:19			17:02		16:04		15:57	
28	05:23		05:57 (2.3.)	06:24			07:26			07:29		08:34		09:07	
	21:51	54	06:54 (4.6.)	20:40			19:17			17:00		16:03		15:58	
29	05:25		05:59 (2.3.)	06:26			07:28			07:31		08:36		09:07	
	21:49	51	06:54 (4.6.)	20:37			19:14			16:58		16:02		15:59	
30	05:27		06:01 (2.3.)	06:28			07:30			07:34		08:38		09:07	
	21:47	49	06:55 (4.6.)	20:34			19:11			16:55		16:01		16:00	
31	05:28		06:02 (2.3.)	06:30						07:36				09:06	
	21:45	46	06:54 (4.6.)	20:32						16:53				16:01	
Potential sun hours	530			470			385			324		247		216	
Total, worst case		1113			339			369							
Sun reduction		0.57			0.52			0.46							
Oper. time red.		0.99			0.99			0.99							
Wind dir. red.		0.68			0.68			0.65							
Total reduction		0.38			0.35			0.30							
Total, real		424			117			110							

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Jaunpekš nas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (11)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	487	406	8,631	

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:04 20:08	05:47 21:11	04:50 22:08	04:44 22:25	05:22 (2.1) 21:43	05:30 20:29	06:32 19:09	07:32 16:51	07:38 16:00
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:23 (2.1) 21:41	05:32 20:26	06:34 19:06	07:34 16:48	07:40 15:59
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:43 21:15	04:48 22:11	04:46 22:23	05:24 (2.1) 21:39	05:34 20:24	06:36 19:03	07:36 16:46	07:42 15:58
4	09:05 16:07	08:24 17:07	07:18 18:09	06:56 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:25 (2.1) 21:37	05:36 20:21	06:38 19:01	07:38 16:44	07:44 15:57
5	09:05 16:08	08:22 17:09	07:16 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:25 (2.1) 21:35	05:38 20:19	06:40 18:58	07:40 16:42	07:47 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:19	05:36 21:21	04:45 22:15	04:49 22:21	05:28 (2.1) 21:33	05:40 20:16	06:42 18:55	07:43 16:40	07:49 15:55
7	09:04 16:11	08:18 17:13	07:10 18:15	06:48 20:21	05:34 21:23	04:44 22:16	05:21 (2.1) 22:21	05:42 21:30	05:44 20:13	06:44 18:53	07:45 16:38	07:51 15:55
8	09:03 16:12	08:16 17:16	07:08 18:18	06:45 20:23	05:31 21:25	04:44 22:17	05:19 (2.1) 22:20	04:51 21:28	04:57 20:11	06:46 18:50	07:47 16:36	07:53 15:54
9	09:02 16:14	08:14 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	05:19 (2.1) 22:19	04:53 21:26	04:58 20:08	06:48 18:47	07:49 16:34	07:55 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	05:18 (2.1) 22:18	04:54 21:24	04:58 20:05	06:50 18:45	07:51 16:32	07:57 15:53
11	09:01 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:20	05:18 (2.1) 22:17	04:55 21:21	05:50 20:02	06:52 18:42	07:53 16:30	08:00 15:53
12	09:00 16:19	08:07 17:25	06:57 18:26	06:35 20:31	05:23 21:33	04:41 22:21	05:32 (2.1) 22:16	05:52 21:19	06:54 20:00	07:55 18:40	08:02 16:28	08:08 15:53
13	08:59 16:21	08:05 17:27	06:55 18:28	06:32 20:33	05:21 21:35	04:41 22:21	05:33 (2.1) 22:15	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:07 15:53
14	08:58 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	05:33 (2.1) 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:08 15:52
15	08:57 16:25	08:00 17:31	06:49 18:33	06:27 20:37	05:17 21:39	04:40 22:23	05:17 (2.1) 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:09 15:52
16	08:55 16:26	07:58 17:34	06:47 18:35	06:24 20:39	05:15 21:41	04:40 22:23	05:17 (2.1) 22:11	06:00 21:10	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:22 20:41	05:13 21:43	04:40 22:24	05:17 (2.1) 22:09	06:02 21:07	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:44	05:11 21:45	04:40 22:24	05:17 (2.1) 22:08	06:04 21:05	07:06 19:44	08:08 18:24	08:14 16:17	09:02 15:53
19	08:52 16:32	07:51 17:40	06:39 18:41	06:16 20:46	05:10 21:47	04:40 22:25	05:17 (2.1) 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:17 16:15	09:03 15:53
20	08:50 16:34	07:48 17:43	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:36 (2.1) 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:19 16:14	09:03 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:26	05:36 (2.1) 22:03	06:10 20:57	07:12 19:35	08:14 18:17	08:21 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:05 21:52	04:40 22:26	05:17 (2.1) 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:11	09:05 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	04:40 22:26	05:18 (2.1) 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:25 16:09	09:05 15:54
24	08:44 16:43	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:18 (2.1) 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:53	06:02 20:58	05:00 21:57	04:41 22:26	05:18 (2.1) 21:57	06:18 20:47	07:20 19:25	07:23 17:07	08:29 16:07	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:56	05:59 21:00	04:58 21:59	04:41 22:26	05:19 (2.1) 21:55	06:20 20:45	07:22 19:22	07:25 17:05	08:30 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:26	05:19 (2.1) 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:26	05:20 (2.1) 21:51	06:24 20:40	07:26 19:17	07:29 17:00	08:34 16:03	09:06 15:58
29	08:36 16:53		07:12 20:02	05:52 21:07	04:54 22:04	04:43 22:25	05:21 (2.1) 21:49	06:26 20:37	07:28 19:14	07:31 16:58	08:36 16:02	09:06 15:59
30	08:34 16:56		07:09 20:04	05:50 21:09	04:53 22:05	04:44 22:25	05:21 (2.1) 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:01	09:06 16:00
31	08:32 16:58		07:06 20:06	05:52 22:07	04:52 22:07		05:28 21:45	06:30 20:32		07:36 16:53		09:06 16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case						385	60					
Sun reduction						0.62	0.57					
Oper. time red.						0.99	0.99					
Wind dir. red.						0.67	0.67					
Total reduction						0.41	0.38					
Total, real						159	23					

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Jurgi - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (84)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:37	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:41	15:55
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:31	05:20	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:18	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:23	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:25	08:31	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:57
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:06
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Kalnacenkuri - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (56)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:09	22:25	21:44	20:29	19:09	16:51	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:05	20:10	21:13	22:10	22:25	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:39	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:13	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:07	17:09	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:48	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:53	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:18	20:23	21:25	22:17	22:20	21:29	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:56	08:53
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:03	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:29	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:55	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:58
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:33	20:38	21:39	22:23	22:13	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:39	05:02	06:00	07:02	08:04	08:11	09:01
	16:26	17:33	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:55	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:02
	16:28	17:36	18:37	20:42	21:43	22:25	22:10	21:07	19:46	18:27	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:39	06:16	05:09	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:03	19:41	18:22	16:15	15:52
20	08:51	07:48	06:36	06:14	05:08	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:36	18:17	16:12	15:53
22	08:48	07:44	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:06
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:53	19:30	18:12	16:09	15:54
24	08:45	07:39	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:27	21:59	20:50	19:27	18:09	16:08	15:55
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:54	18:54	20:58	21:58	22:27	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:07
	16:46	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:21	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:29	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:03	22:26	21:51	20:40	19:17	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:50	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:06	22:25	21:48	20:35	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	234	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Kalnaraji (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (100)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

January			February			March			April			May			June		
1	09:06		14:33 (1.2)	08:30		14:36 (1.2)	07:26		17:10 (1.1)	07:03		19:11 (1.3)	05:47		04:50		
	16:02	26	14:59 (1.2)	17:00	40	15:16 (1.2)	18:02	12	17:22 (1.1)	20:08	19	19:30 (1.3)	21:11		22:08		
2	09:06		14:33 (1.2)	08:28		14:37 (1.2)	07:23		17:06 (1.1)	07:01		19:11 (1.3)	05:45		04:49		
	16:03	26	14:59 (1.2)	17:02	39	15:16 (1.2)	18:04	19	17:25 (1.1)	20:10	17	19:28 (1.3)	21:13		22:10		
3	09:06		14:33 (1.2)	08:26		14:37 (1.2)	07:21		17:04 (1.1)	06:58		19:12 (1.3)	05:42		04:48		
	16:05	28	15:01 (1.2)	17:04	38	15:15 (1.2)	18:07	24	17:28 (1.1)	20:12	14	19:26 (1.3)	21:15		22:11		
4	09:05		14:33 (1.2)	08:24		14:39 (1.2)	07:18		17:01 (1.1)	06:55		19:14 (1.3)	05:40		04:47		
	16:06	28	15:01 (1.2)	17:06	36	15:15 (1.2)	18:09	28	17:29 (1.1)	20:14	10	19:24 (1.3)	21:17		22:12		
5	09:05		14:33 (1.2)	08:22		14:40 (1.2)	07:15		16:59 (1.1)	06:53			05:38		04:46		
	16:07	29	15:02 (1.2)	17:09	34	15:14 (1.2)	18:11	31	17:30 (1.1)	20:16			21:19		22:14		
6	09:04		14:33 (1.2)	08:20		14:41 (1.2)	07:13		16:59 (1.1)	06:50			05:35		04:45		
	16:09	31	15:04 (1.2)	17:11	33	15:14 (1.2)	18:13	33	17:32 (1.1)	20:18			21:21		22:15		
7	09:04		14:33 (1.2)	08:18		14:42 (1.2)	07:10		16:57 (1.1)	06:47			05:33		04:44		
	16:10	31	15:04 (1.2)	17:13	30	15:12 (1.2)	18:15	35	17:32 (1.1)	20:20			21:23		22:16		
8	09:03		14:33 (1.2)	08:16		14:44 (1.2)	07:08		16:56 (1.1)	06:45			05:31		04:43		
	16:12	32	15:05 (1.2)	17:15	27	15:11 (1.2)	18:17	37	17:33 (1.1)	20:23			21:25		22:17		
9	09:02		14:33 (1.2)	08:14		14:47 (1.2)	07:05		16:56 (1.1)	06:42			05:29		04:42		
	16:14	33	15:06 (1.2)	17:18	22	15:09 (1.2)	18:19	38	17:34 (1.1)	20:25			21:27		22:18		
10	09:02		14:33 (1.2)	08:11		14:49 (1.2)	07:02		16:55 (1.1)	06:39			05:27		04:42		
	16:15	34	15:07 (1.2)	17:20	17	15:06 (1.2)	18:22	39	17:34 (1.1)	20:27			21:29		22:19		
11	09:01		14:32 (1.2)	08:09		14:54 (1.2)	07:00		16:54 (1.1)	06:37			05:25		04:41		
	16:17	35	15:07 (1.2)	17:22	8	15:02 (1.2)	18:24	39	17:33 (1.1)	20:29			21:31		22:20		
12	09:00		14:32 (1.2)	08:07			06:57		16:54 (1.1)	06:34			05:23		04:41		
	16:19	36	15:08 (1.2)	17:24			18:26	40	17:34 (1.1)	20:31			21:33		22:21		
13	08:59		14:32 (1.2)	08:05			06:54		16:53 (1.1)	06:32			05:21		04:40		
	16:20	38	15:10 (1.2)	17:27			18:28	41	17:34 (1.1)	20:33			21:35		22:22		
14	08:58		14:33 (1.2)	08:02			06:52		16:53 (1.1)	06:29			05:19		04:40		
	16:22	38	15:11 (1.2)	17:29			18:30	40	17:33 (1.1)	20:35			21:37		22:22		
15	08:57		14:32 (1.2)	08:00			06:49		16:53 (1.1)	06:26			05:17		04:40		
	16:24	39	15:11 (1.2)	17:31			18:32	39	17:32 (1.1)	20:37			21:39		22:23		
16	08:55		14:33 (1.2)	07:58			06:46		16:53 (1.1)	06:24			05:15		04:39		
	16:26	39	15:12 (1.2)	17:33			18:34	40	17:33 (1.1)	20:39			21:41		22:24		
17	08:54		14:32 (1.2)	07:55			06:44		16:53 (1.1)	06:21			05:13		04:39		
	16:28	40	15:12 (1.2)	17:36			18:37	39	17:32 (1.1)	20:41			21:43		22:24		
18	08:53		14:33 (1.2)	07:53			06:41		16:53 (1.1)	06:19			05:11		04:39		
	16:30	40	15:13 (1.2)	17:38			18:39	37	17:30 (1.1)	20:44			21:45		22:25		
19	08:52		14:32 (1.2)	07:51			06:38		16:55 (1.1)	06:16			05:09		04:39		
	16:32	42	15:14 (1.2)	17:40			18:41	35	17:30 (1.1)	20:46			21:47		22:25		
20	08:50		14:32 (1.2)	07:48			06:36		16:55 (1.1)	06:14			05:07		04:39		
	16:34	42	15:14 (1.2)	17:42			18:43	34	17:29 (1.1)	20:48			21:48		22:25		
21	08:49		14:33 (1.2)	07:46			06:33		16:56 (1.1)	06:11			05:06		04:39		
	16:36	42	15:15 (1.2)	17:44			18:45	31	17:27 (1.1)	20:50			21:50		22:26		
22	08:47		14:33 (1.2)	07:43			06:30		16:56 (1.1)	06:09			05:04		04:39		
	16:38	42	15:15 (1.2)	17:47			18:47	29	17:25 (1.1)	20:52			21:52		22:26		
23	08:46		14:33 (1.2)	07:41			06:28		16:59 (1.1)	06:06			05:02		04:40		
	16:40	43	15:16 (1.2)	17:49			18:49	28	18:21 (1.3)	20:54			21:54		22:26		
24	08:44		14:33 (1.2)	07:38			06:25		17:00 (1.1)	06:04			05:01		04:40		
	16:42	43	15:16 (1.2)	17:51			18:51	29	18:23 (1.3)	20:56			21:56		22:26		
25	08:43		14:33 (1.2)	07:36			06:22		17:03 (1.1)	06:01			04:59		04:40		
	16:44	43	15:16 (1.2)	17:53			18:53	26	18:25 (1.3)	20:58			21:57		22:26		
26	08:41		14:33 (1.2)	07:33			06:19		18:13 (1.3)	05:59			04:58		04:41		
	16:46	43	15:16 (1.2)	17:56			18:55	14	18:27 (1.3)	21:00			21:59		22:26		
27	08:39		14:34 (1.2)	07:31			06:17		18:11 (1.3)	05:56			04:56		04:41		
	16:49	42	15:16 (1.2)	17:58			18:58	18	18:29 (1.3)	21:02			22:01		22:26		
28	08:37		14:34 (1.2)	07:28			06:14		18:10 (1.3)	05:54			04:55		04:42		
	16:51	42	15:16 (1.2)	18:00			19:00	21	18:31 (1.3)	21:04			22:02		22:26		
29	08:36		14:34 (1.2)				07:11		19:11 (1.3)	05:52			04:54		04:42		
	16:53	42	15:16 (1.2)				20:02	21	19:32 (1.3)	21:07			22:04		22:25		
30	08:34		14:35 (1.2)				07:09		19:10 (1.3)	05:49			04:52		04:43		
	16:55	42	15:17 (1.2)				20:04	21	19:31 (1.3)	21:09			22:05		22:25		
31	08:32		14:36 (1.2)				07:06		19:10 (1.3)				04:51				
	16:57	40	15:16 (1.2)				20:06	20	19:30 (1.3)				22:07				
Potential sun hours	235				266			366			426			508			529
Total, worst case			1151			324			938			60					
Sun reduction			0.18			0.32			0.40			0.57					
Oper. time red.			0.99			0.99			0.99			0.99					
Wind dir. red.			0.66			0.66			0.67			0.66					
Total reduction			0.12			0.21			0.26			0.37					
Total, real			133			68			248			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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Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Kalnaraji (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (100)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:32	07:32	17:33 (1.1)	07:38
2	22:25	21:43	20:29	19:08	18:13 (1.1)	16:50
3	04:45	05:32	06:34	07:34	17:33 (1.1)	07:40
4	22:24	21:41	20:26	19:06	18:13 (1.1)	16:48
5	04:46	05:34	06:36	07:36	17:33 (1.1)	07:42
6	22:24	21:39	20:24	19:03	18:12 (1.1)	16:46
7	04:47	05:36	06:38	07:38	17:33 (1.1)	07:44
8	22:23	21:37	20:21	19:00	18:11 (1.1)	16:44
9	04:48	05:38	06:40	07:40	17:33 (1.1)	07:47
10	22:22	21:35	20:18	18:58	18:10 (1.1)	16:42
11	04:49	05:40	06:42	07:42	17:33 (1.1)	07:49
12	22:22	21:33	20:16	18:55	18:09 (1.1)	16:39
13	04:50	05:42	06:44	07:44	17:33 (1.1)	07:51
14	22:21	21:30	20:13	18:52	18:08 (1.1)	16:37
15	04:51	05:44	06:46	19:09 (1.3)	17:34 (1.1)	07:53
16	22:20	21:28	20:10	19:18 (1.3)	18:06 (1.1)	16:35
17	04:52	05:46	06:48	19:06 (1.3)	17:36 (1.1)	07:55
18	22:19	21:26	20:08	19:20 (1.3)	18:05 (1.1)	16:33
19	04:53	05:48	06:50	19:04 (1.3)	17:37 (1.1)	07:57
20	22:18	21:24	20:05	19:21 (1.3)	18:03 (1.1)	16:31
21	04:55	05:50	06:52	19:03 (1.3)	17:39 (1.1)	08:00
22	22:17	21:21	20:02	19:22 (1.3)	18:01 (1.1)	16:29
23	04:56	05:52	06:54	19:02 (1.3)	17:41 (1.1)	08:02
24	22:16	21:19	20:00	19:22 (1.3)	17:58 (1.1)	16:27
25	04:57	05:54	06:56	19:01 (1.3)	17:45 (1.1)	08:04
26	22:15	21:17	19:57	19:22 (1.3)	17:53 (1.1)	16:25
27	04:59	05:56	06:58	19:01 (1.3)	18:06	08:06
28	22:13	21:14	19:54	19:22 (1.3)	16:24	14:49 (1.2)
29	05:00	05:58	07:00	19:01 (1.3)	08:08	14:07 (1.2)
30	22:12	21:12	19:52	19:22 (1.3)	16:22	14:49 (1.2)
31	05:02	06:00	07:02	19:01 (1.3)	08:10	14:06 (1.2)
32	22:11	21:10	19:49	19:19 (1.3)	16:20	14:49 (1.2)
33	05:03	06:02	07:04	19:01 (1.3)	08:12	14:07 (1.2)
34	22:09	21:07	19:46	19:16 (1.3)	16:18	14:50 (1.2)
35	05:05	06:04	07:06	17:52 (1.1)	08:14	14:07 (1.2)
36	22:08	21:05	19:43	19:13 (1.3)	16:17	14:50 (1.2)
37	05:07	06:06	07:08	17:48 (1.1)	08:17	14:07 (1.2)
38	22:06	21:02	19:41	19:10 (1.3)	16:15	14:50 (1.2)
39	05:08	06:08	07:10	17:45 (1.1)	08:19	14:08 (1.2)
40	22:05	21:00	19:38	19:07 (1.3)	16:13	14:50 (1.2)
41	05:10	06:10	07:12	17:42 (1.1)	08:21	14:08 (1.2)
42	22:03	20:57	19:35	18:10 (1.1)	16:12	14:50 (1.2)
43	05:12	06:12	07:14	17:41 (1.1)	08:23	14:08 (1.2)
44	22:02	20:55	19:33	18:11 (1.1)	16:10	14:50 (1.2)
45	05:13	06:14	07:16	17:39 (1.1)	08:25	14:09 (1.2)
46	22:00	20:52	19:30	18:12 (1.1)	16:09	14:51 (1.2)
47	05:15	06:16	07:18	17:38 (1.1)	08:27	14:10 (1.2)
48	21:58	20:50	19:27	18:13 (1.1)	16:07	14:51 (1.2)
49	05:17	06:18	07:20	17:36 (1.1)	08:29	14:10 (1.2)
50	21:57	20:47	19:24	18:13 (1.1)	16:06	14:50 (1.2)
51	05:19	06:20	07:22	17:35 (1.1)	08:31	14:11 (1.2)
52	21:55	20:45	19:22	18:13 (1.1)	16:05	14:50 (1.2)
53	05:20	06:22	07:24	17:34 (1.1)	08:32	14:11 (1.2)
54	21:53	20:42	19:19	18:13 (1.1)	16:04	14:50 (1.2)
55	05:22	06:24	07:26	17:35 (1.1)	08:34	14:12 (1.2)
56	21:51	20:39	19:16	18:14 (1.1)	16:02	14:50 (1.2)
57	05:24	06:26	07:28	17:34 (1.1)	08:36	14:12 (1.2)
58	21:49	20:37	19:14	18:14 (1.1)	16:01	14:50 (1.2)
59	05:26	06:28	07:30	17:33 (1.1)	08:38	14:13 (1.2)
60	21:47	20:34	19:11	18:14 (1.1)	16:00	14:50 (1.2)
61	05:28	06:30		07:36		09:06
62	21:45	20:32		16:53	14:22 (1.2)	16:01
63					14:33 (1.2)	
Potential sun hours	530	470	385	323	247	215
Total, worst case			616	410	1137	754
Sun reduction			0.46	0.31	0.16	0.10
Oper. time red.			0.99	0.99	0.99	0.99
Wind dir. red.			0.67	0.68	0.66	0.66
Total reduction			0.30	0.21	0.10	0.07
Total, real			188	84	115	51

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Kalnini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (40)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:39
	16:02	16:59	18:02	20:08	21:10	22:08	22:24	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:09	22:24	21:41	20:26	19:05	16:48	15:58
3	09:05	08:26	07:20	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:44
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:37	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:57	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:48	08:48
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:39	15:55
7	09:03	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:15	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:22	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:48	07:55	08:52
	16:13	17:17	18:19	20:24	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:50	07:57	08:53
	16:15	17:20	18:21	20:27	21:29	22:19	22:18	21:23	20:05	18:44	16:31	15:53
11	09:00	08:09	06:59	06:37	05:25	04:41	04:54	05:49	06:52	07:53	07:59	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	08:59	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	19:59	18:39	16:27	15:52
13	08:59	08:04	06:54	06:31	05:20	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:21	22:14	21:17	19:57	18:36	16:25	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:23	15:52
15	08:56	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:57	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:23	22:11	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:43	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:14	09:02
	16:30	17:38	18:38	20:43	21:44	22:24	22:08	21:04	19:43	18:24	16:16	15:52
19	08:51	07:50	06:38	06:16	05:09	04:39	05:06	06:05	07:08	08:09	08:16	09:03
	16:32	17:40	18:41	20:45	21:46	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:35	06:13	05:07	04:39	05:08	06:07	07:10	08:12	08:18	09:03
	16:34	17:42	18:43	20:47	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:44	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:03	05:01	04:40	05:15	06:16	07:18	08:20	08:26	09:05
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:28	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:56	20:47	19:24	17:06	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:24	08:30	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:44	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:25	21:51	20:39	19:16	16:59	16:02	15:58
29	08:35		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:06
	16:53		20:01	21:06	22:03	22:25	21:49	20:37	19:13	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:06		21:45	20:31		16:52		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Kalves - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (67)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:47
	16:07	17:08	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:35	04:45	04:48	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:04	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:48	17:58	18:58	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:11	05:52	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	234	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Kamenites - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (80)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December	
1	09:06 16:02	08:30 16:59	07:26 18:02	07:03 20:08	05:47 21:11	04:50 22:08	04:44 22:25	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:50	08:40 15:59	15:04 (1.1) 15:19 (1.1)
2	09:06 16:03	08:28 17:02	07:23 18:04	07:01 20:10	05:44 21:13	04:49 22:10	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:58	15:04 (1.1) 15:16 (1.1)
3	09:06 16:05	15:21 (1.1) 17:04	08:26 18:06	07:21 20:12	06:58 21:15	05:42 22:11	04:47 22:24	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:57	15:04 (1.1) 15:15 (1.1)
4	09:05 16:06	15:21 (1.1) 17:06	08:24 18:09	07:18 20:14	06:55 21:17	05:40 22:12	04:46 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:45 15:56	15:05 (1.1) 15:14 (1.1)
5	09:05 16:07	15:22 (1.1) 17:08	08:22 18:11	07:15 20:16	06:53 21:19	05:38 22:14	04:47 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:47 16:42	08:46 15:56	15:06 (1.1) 15:14 (1.1)
6	09:04 16:09	15:21 (1.1) 17:11	08:20 18:13	07:13 20:18	06:50 21:21	05:35 22:15	04:48 22:22	05:40 21:33	06:42 20:16	07:42 18:55	07:49 16:39	08:48 15:55	15:07 (1.1) 15:13 (1.1)
7	09:04 16:10	15:21 (1.1) 17:13	08:18 18:15	07:10 20:20	06:47 21:23	05:33 22:16	04:44 22:21	05:41 21:30	06:44 20:13	07:44 18:52	07:51 16:37	08:49 15:54	15:08 (1.1) 15:12 (1.1)
8	09:03 16:12	15:21 (1.1) 17:15	08:16 18:17	07:08 20:23	06:45 21:25	05:31 22:17	04:43 22:20	05:43 21:28	06:46 20:10	07:47 18:50	07:53 16:35	08:51 15:54	15:09 (1.1) 15:11 (1.1)
9	09:02 16:13	15:21 (1.1) 17:17	08:14 18:19	07:05 20:25	06:42 21:27	05:29 22:18	04:42 22:19	05:45 21:26	06:48 20:08	07:49 18:47	07:55 16:33	08:52 15:53	15:09 (1.1) 15:10 (1.1)
10	09:02 16:15	15:22 (1.1) 17:20	08:11 18:22	07:02 20:27	06:39 21:29	05:27 22:19	04:42 22:18	05:47 21:24	06:50 20:05	07:51 18:44	07:57 16:31	08:54 15:53	
11	09:01 16:17	15:22 (1.1) 17:22	08:09 18:24	07:00 20:29	06:37 21:31	05:25 22:20	04:41 22:17	05:49 21:21	06:52 20:02	07:53 18:42	08:00 16:29	08:55 15:52	
12	09:00 16:19	15:21 (1.1) 17:24	08:07 18:26	06:57 20:31	06:34 21:33	05:23 22:21	04:41 22:16	05:51 21:19	06:54 20:00	07:55 18:39	08:02 16:27	08:56 15:52	
13	08:59 16:20	15:22 (1.1) 17:27	08:05 18:28	06:54 20:33	06:32 21:35	05:21 22:22	04:40 22:15	05:53 21:17	06:56 20:00	07:57 18:37	08:04 16:25	08:57 15:52	
14	08:58 16:22	15:22 (1.1) 17:29	08:02 18:30	06:52 20:35	06:29 21:37	05:19 22:22	04:40 22:13	05:55 21:14	06:58 20:00	07:59 18:34	08:06 16:24	08:58 15:52	
15	08:57 16:24	15:22 (1.1) 17:31	08:00 18:32	06:49 20:37	06:26 21:39	05:17 22:23	04:39 22:12	05:57 21:12	07:00 20:00	08:01 18:31	08:08 16:22	08:59 15:52	15:07 (1.1) 15:11 (1.1)
16	08:55 16:26	15:23 (1.1) 17:33	07:58 18:34	06:46 20:39	06:24 21:41	05:15 22:24	04:39 22:11	05:02 21:10	07:02 20:00	08:03 18:29	08:10 16:20	09:00 15:52	15:04 (1.1) 15:14 (1.1)
17	08:54 16:28	15:23 (1.1) 17:36	07:55 18:36	06:44 20:41	06:21 21:43	05:13 22:24	04:39 22:09	05:03 21:07	06:02 20:00	07:04 18:26	08:05 16:18	09:01 15:52	15:03 (1.1) 15:16 (1.1)
18	08:53 16:30	15:24 (1.1) 17:38	07:53 18:39	06:41 20:44	06:19 21:45	05:11 22:25	04:39 22:08	05:05 21:05	06:04 20:00	07:06 18:24	08:07 16:17	09:02 15:52	15:02 (1.1) 15:17 (1.1)
19	08:52 16:32	15:24 (1.1) 17:40	07:51 18:41	06:38 20:46	06:16 21:47	05:09 22:25	04:39 22:07	05:06 21:02	06:06 20:00	07:08 18:21	08:10 16:15	09:03 15:52	15:01 (1.1) 15:18 (1.1)
20	08:50 16:34	15:24 (1.1) 17:42	07:48 18:43	06:36 20:48	06:14 21:48	05:07 22:25	04:39 22:05	05:08 21:00	06:08 20:00	07:10 18:19	08:12 16:13	09:04 15:52	15:00 (1.1) 15:20 (1.1)
21	08:49 16:36	15:26 (1.1) 17:44	07:46 18:45	06:33 20:50	06:11 21:50	05:06 22:26	04:39 22:03	05:10 20:57	06:10 20:00	07:12 18:16	08:14 16:12	09:04 15:53	15:01 (1.1) 15:20 (1.1)
22	08:47 16:38	15:26 (1.1) 17:47	07:43 18:47	06:30 20:52	06:09 21:52	05:04 22:26	04:39 22:02	05:11 20:55	06:12 20:00	07:14 18:14	08:16 16:10	09:05 15:53	15:00 (1.1) 15:20 (1.1)
23	08:46 16:40	15:27 (1.1) 17:49	07:41 18:49	06:28 20:54	06:06 21:54	05:02 22:26	04:39 22:00	05:13 20:52	06:14 20:00	07:16 18:11	08:18 16:09	09:05 15:54	15:01 (1.1) 15:22 (1.1)
24	08:44 16:42	15:28 (1.1) 17:51	07:38 18:51	06:25 20:56	06:04 21:56	05:01 22:26	04:40 21:58	05:15 20:50	06:16 20:00	07:18 18:09	08:20 16:07	09:06 15:55	15:01 (1.1) 15:22 (1.1)
25	08:43 16:44	15:29 (1.1) 17:53	07:36 18:53	06:22 20:58	06:01 21:57	05:00 22:26	04:40 21:57	05:17 20:47	06:18 20:00	07:20 18:00	08:22 16:00	09:07 15:56	15:01 (1.1) 15:22 (1.1)
26	08:41 16:46	15:31 (1.1) 17:56	07:33 18:55	06:19 21:00	05:59 21:59	04:58 22:26	04:41 21:55	05:19 20:45	06:20 20:00	07:22 18:00	08:24 16:00	09:08 15:57	15:01 (1.1) 15:22 (1.1)
27	08:39 16:48	15:34 (1.1) 17:58	07:31 18:57	06:17 21:02	05:56 22:01	04:56 22:26	04:41 21:53	05:20 20:42	06:22 20:00	07:24 18:00	08:26 16:00	09:09 15:58	15:01 (1.1) 15:22 (1.1)
28	08:37 16:51	15:38 (1.1) 18:00	07:28 19:00	06:14 21:04	05:54 22:02	04:55 22:26	04:42 21:51	05:22 20:39	06:24 20:00	07:26 18:00	08:28 16:00	09:10 15:59	15:01 (1.1) 15:22 (1.1)
29	08:36 16:53		07:11 20:02	05:51 21:07	04:53 22:04	04:42 22:25	05:24 21:49	06:26 20:37	07:28 18:00	08:30 16:00	09:31 15:59	09:11 15:58	15:03 (1.1) 15:21 (1.1)
30	08:34 16:55		07:09 20:04	05:49 21:09	04:52 22:05	04:43 22:25	05:26 21:47	06:28 20:34	07:30 18:00	08:32 16:00	09:33 15:59	09:12 15:58	15:03 (1.1) 15:20 (1.1)
31	08:32 16:57		07:06 20:06	05:48 21:06	04:51 22:07	04:45 22:27	05:28 21:45	06:30 20:32	07:36 18:00	08:34 16:00	09:35 15:59	09:13 15:58	15:03 (1.1) 15:20 (1.1)
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215	68
Total, worst case													0.10
Sun reduction													0.99
Oper. time red.													0.67
Wind dir. red.													0.10
Total reduction													0.07
Total, real													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:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Krumi - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (58)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:09	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:25	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:13	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:07	17:09	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:56	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:02	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:55	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:11	09:01
	16:26	17:33	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:25	22:10	21:07	19:46	18:27	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:35	18:17	16:12	15:53
22	08:48	07:43	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:39	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:55
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:58	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:07
	16:46	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:17	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:06	22:25	21:48	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	234	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Kunkuli (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (29)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:25	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:37	08:39
	16:02	17:00	18:02	20:08	21:10	22:08	22:24	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:12	22:09	22:24	21:41	20:26	19:05	16:48	15:58
3	09:05	08:26	07:20	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:10	22:23	21:39	20:23	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:44
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:04	08:22	07:15	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:34	20:18	18:57	16:42	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:49	05:40	06:42	07:42	07:48	08:47
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:39	15:55
7	09:03	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:15	22:20	21:30	20:13	18:52	16:37	15:54
8	09:03	08:15	07:07	06:45	05:31	04:43	04:51	05:44	06:46	07:46	07:53	08:50
	16:12	17:15	18:17	20:22	21:25	22:17	22:19	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:48	07:55	08:52
	16:14	17:17	18:19	20:24	21:27	22:18	22:19	21:26	20:07	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:48	06:50	07:50	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:23	20:05	18:44	16:31	15:53
11	09:00	08:09	06:59	06:37	05:25	04:41	04:55	05:50	06:52	07:53	07:59	08:54
	16:17	17:22	18:24	20:29	21:31	22:19	22:17	21:21	20:02	18:42	16:29	15:53
12	08:59	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:01	08:56
	16:19	17:24	18:26	20:31	21:33	22:20	22:15	21:19	19:59	18:39	16:27	15:52
13	08:58	08:04	06:54	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:21	22:14	21:16	19:57	18:37	16:25	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:57	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:23	22:10	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:42	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:38	20:43	21:44	22:24	22:08	21:04	19:43	18:24	16:17	15:52
19	08:51	07:50	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:09	08:16	09:02
	16:32	17:40	18:41	20:45	21:46	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:35	06:14	05:08	04:39	05:08	06:08	07:10	08:11	08:18	09:03
	16:34	17:42	18:43	20:47	21:48	22:25	22:05	20:59	19:38	18:19	16:13	15:53
21	08:48	07:45	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:44	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:25	22:01	20:54	19:32	18:14	16:10	15:54
23	08:45	07:41	06:27	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:53	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:26	09:05
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:49	19:27	18:09	16:07	15:55
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:28	09:05
	16:44	17:53	18:53	20:58	21:57	22:26	21:56	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:24	08:30	09:06
	16:46	17:55	18:55	21:00	21:58	22:26	21:54	20:44	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:57	21:02	22:00	22:25	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:25	21:51	20:39	19:16	16:59	16:02	15:58
29	08:35		07:11	05:52	04:54	04:43	05:24	06:26	07:28	07:31	08:36	09:06
	16:53		20:01	21:06	22:03	22:25	21:49	20:37	19:14	16:57	16:01	15:59
30	08:33		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:06		21:45	20:31		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Kanes - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (9)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:03	07:04 20:08	05:47 21:11	04:50 22:08	04:45 22:24	05:30 21:43	06:32 20:29	07:32 19:09	07:38 16:51	08:40 16:00
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:27	07:34 19:06	07:40 16:49	08:41 15:59
3	09:06 16:05	08:26 17:05	07:21 18:07	06:58 20:12	05:43 21:15	04:48 22:11	04:46 22:23	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:07	08:24 17:07	07:18 18:09	06:56 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:01	07:44 16:44	08:45 15:57
5	09:05 16:08	08:22 17:09	07:16 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:38 21:35	06:40 20:19	07:41 18:58	07:47 16:42	08:46 15:56
6	09:04 16:10	08:20 17:11	07:13 18:13	06:50 20:19	05:36 21:21	04:45 22:15	04:49 22:21	05:40 21:33	06:42 20:16	07:43 18:55	07:49 16:40	08:48 15:56
7	09:04 16:11	08:18 17:14	07:10 18:16	06:48 20:21	05:34 21:23	04:45 22:16	04:50 22:21	05:42 21:30	06:44 20:13	07:45 18:53	07:51 16:38	08:49 15:55
8	09:03 16:13	08:16 17:16	07:08 18:18	06:45 20:23	05:32 21:25	04:44 22:17	04:52 22:20	05:44 21:28	06:46 20:11	07:47 18:50	07:53 16:36	08:51 15:54
9	09:02 16:14	08:14 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:03 18:22	06:40 20:27	05:27 21:29	04:43 22:19	04:54 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:57 16:32	08:53 15:54
11	09:01 16:18	08:09 17:23	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:20	04:55 22:17	05:50 21:21	06:52 20:03	07:53 18:42	08:00 16:30	08:55 15:53
12	09:00 16:19	08:07 17:25	06:57 18:26	06:35 20:31	05:23 21:33	04:41 22:21	04:57 22:16	05:52 21:19	06:54 20:00	07:55 18:40	08:02 16:28	08:56 15:53
13	08:59 16:21	08:05 17:27	06:55 18:28	06:32 20:33	05:21 21:35	04:41 22:21	04:58 22:14	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:53
14	08:58 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:41 22:22	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:53
15	08:56 16:25	08:00 17:32	06:49 18:33	06:27 20:37	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:27	07:58 17:34	06:47 18:35	06:24 20:39	05:15 21:41	04:40 22:23	05:02 22:11	06:00 21:10	07:02 19:49	08:03 18:29	08:10 16:21	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:22 20:42	05:13 21:43	04:40 22:24	05:04 22:09	06:02 21:07	07:04 19:46	08:06 18:27	08:12 16:19	09:01 15:53
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:44	05:12 21:45	04:40 22:24	05:06 22:08	06:04 21:05	07:06 19:44	08:08 18:24	08:14 16:17	09:02 15:53
19	08:52 16:32	07:51 17:40	06:39 18:41	06:17 20:46	05:10 21:46	04:40 22:25	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:17 16:16	09:03 15:53
20	08:50 16:34	07:48 17:43	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:19 16:14	09:03 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:12 20:50	05:06 21:50	04:40 22:25	05:10 22:03	06:10 20:57	07:12 19:36	08:14 18:17	08:21 16:12	09:04 15:54
22	08:47 16:39	07:43 17:47	06:31 18:47	06:09 20:52	05:05 21:52	04:40 22:26	05:12 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:11	09:04 15:54
23	08:46 16:41	07:41 17:49	06:28 18:49	06:07 20:54	05:03 21:54	04:40 22:26	05:14 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:25 16:09	09:05 15:55
24	08:44 16:43	07:38 17:52	06:25 18:51	06:04 20:56	05:01 21:55	04:41 22:26	05:16 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:54	06:02 20:58	05:00 21:57	04:41 22:26	05:17 21:56	06:18 20:47	07:20 19:25	08:23 17:07	08:29 16:07	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:56	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	08:25 17:05	08:30 16:05	09:06 15:57
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:26	05:21 21:53	06:22 20:42	07:24 19:19	08:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:56 22:02	04:43 22:25	05:23 21:51	06:24 20:40	07:26 19:17	08:29 17:00	08:34 16:03	09:06 15:58
29	08:36 16:53		07:12 20:02	05:52 21:07	04:54 22:04	04:43 22:25	05:25 21:49	06:26 20:37	07:28 19:14	08:31 16:58	08:36 16:02	09:06 15:59
30	08:34 16:56		07:09 20:04	05:50 21:09	04:53 22:05	04:44 22:25	05:27 21:47	06:28 20:34	07:30 19:11	08:33 16:55	08:38 16:01	09:06 16:00
31	08:32 16:58		07:06 20:06		04:52 22:07		05:29 21:45	06:30 20:32		07:36 16:53		09:06 16:01
Potential sun hours	235	266	366	426	508	529	529	469	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Karš as - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (57)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:09	22:25	21:44	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:25	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:13	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:07	17:09	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:48	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:29	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:56	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:03	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:29	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:55	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:11	09:01
	16:26	17:33	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:55	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:25	22:10	21:07	19:46	18:27	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:03	19:41	18:22	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:35	18:17	16:12	15:53
22	08:48	07:44	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:39	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:55
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:54	20:58	21:58	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:07
	16:46	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:17	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:06	22:25	21:48	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
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Potential sun hours	234	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Leibas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (23)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

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

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VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

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02/05/2022 17:18/3.5.576

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Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:02	08:30 17:00	15:30 (1.6.) 18:02	07:26 17:33 (4.7.C)	07:03 20:08	18:40 (1.5.) 21:11
2	09:06 16:03	08:28 17:02	15:29 (1.6.) 18:04	07:23 17:35 (4.7.C)	07:01 20:10	18:40 (1.5.) 21:13
3	09:06 16:05	08:26 17:04	15:29 (1.6.) 18:06	07:20 17:36 (4.7.C)	06:58 20:12	18:40 (1.5.) 21:15
4	09:05 16:06	08:24 17:06	15:29 (1.6.) 18:09	07:18 17:36 (4.7.C)	06:55 20:14	18:41 (1.5.) 21:17
5	09:05 16:07	08:22 17:08	15:29 (1.6.) 18:11	07:15 17:35 (4.7.C)	06:53 20:16	18:41 (1.5.) 21:19
6	09:04 16:09	08:20 17:11	15:30 (1.6.) 18:13	07:13 17:36 (4.7.C)	06:50 20:18	18:42 (1.5.) 21:21
7	09:04 16:10	08:18 17:13	15:29 (1.6.) 18:15	07:10 17:35 (4.7.C)	06:47 20:20	18:43 (1.5.) 21:23
8	09:03 16:12	08:16 17:15	15:29 (1.6.) 18:17	07:07 17:34 (4.7.C)	06:45 20:22	18:44 (1.5.) 21:25
9	09:02 16:14	08:13 17:17	15:30 (1.6.) 18:19	07:05 17:33 (4.7.C)	06:42 20:25	18:46 (1.5.) 21:27
10	09:01 16:15	08:11 17:20	15:30 (1.6.) 18:22	07:02 17:31 (4.7.C)	06:39 20:27	18:49 (1.5.) 21:29
11	09:00 16:17	08:09 17:22	15:31 (1.6.) 18:24	07:00 17:29 (4.7.C)	06:37 20:29	19:01 (1.5.) 21:31
12	09:00 16:19	08:07 17:24	15:31 (1.6.) 18:26	06:57 17:25 (4.7.C)	06:34 20:31	21:31 21:33
13	08:59 16:20	08:05 17:27	15:32 (1.6.) 18:28	06:54 18:28	06:32 20:33	21:33 21:35
14	08:58 16:22	08:02 17:29	15:32 (1.6.) 18:30	06:52 18:30	06:29 20:35	21:35 21:37
15	08:56 16:24	08:00 17:31	15:33 (1.6.) 18:32	06:49 18:32	06:26 20:37	21:37 21:39
16	08:55 16:26	07:58 17:33	15:34 (1.6.) 18:34	06:46 18:34	06:24 20:39	21:39 21:41
17	08:54 16:28	07:55 17:36	15:36 (1.6.) 18:36	06:44 18:36	06:21 20:41	21:41 21:43
18	08:53 16:30	07:53 17:38	15:38 (1.6.) 18:39	06:41 18:39	06:19 20:43	21:43 21:45
19	08:51 16:32	07:50 17:40	15:41 (1.6.) 18:41	06:38 18:41	06:16 20:45	21:45 21:46
20	08:50 16:34	07:48 17:42	15:45 (1.6.) 18:43	06:36 18:43	06:14 20:48	21:46 21:48
21	08:49 16:36	07:46 17:44	15:51 (1.6.) 18:45	06:33 18:45	06:11 20:50	21:48 21:50
22	08:47 16:38	07:43 15:40 (1.6.) 17:47	06:30 18:47	06:09 18:12 (1.5.) 20:52	06:09 20:52	21:50 21:52
23	08:46 16:40	07:41 15:38 (1.6.) 17:49	06:27 18:49	06:06 18:14 (1.5.) 20:54	06:06 20:54	21:52 21:54
24	08:44 16:42	07:38 15:53 (1.6.) 17:51	06:25 18:51	06:04 18:15 (1.5.) 20:56	06:04 20:56	21:54 21:55
25	08:42 16:44	07:36 15:34 (1.6.) 17:53	06:22 18:53	06:01 17:44 (1.5.) 20:58	06:01 20:58	21:55 21:57
26	08:41 16:46	07:33 15:33 (1.6.) 17:56	06:19 17:20 (4.7.C) 18:55	05:59 17:44 (1.5.) 21:00	05:59 21:00	21:57 21:59
27	08:39 16:49	07:31 15:32 (1.6.) 17:58	06:17 17:17 (4.7.C) 18:57	05:56 17:42 (1.5.) 21:02	05:56 21:02	21:59 22:00
28	08:37 16:51	07:28 16:00 (1.6.) 18:00	06:14 17:28 (4.7.C) 18:59	05:54 17:41 (1.5.) 21:04	05:54 21:04	22:00 22:02
29	08:35 16:53	07:26 16:01 (1.6.) 18:02	06:11 17:31 (4.7.C) 20:02	05:52 18:41 (1.5.) 21:06	05:52 21:06	22:02 22:04
30	08:34 16:55	07:24 15:31 (1.6.) 18:04	06:09 17:09 20:04	05:49 18:41 (1.5.) 21:08	05:49 21:08	22:04 22:05
31	08:32 16:57	07:22 15:30 (1.6.) 18:06	06:06 17:06 20:06	05:47 18:40 (1.5.) 21:10	05:47 21:10	22:05 22:07
Potential sun hours	235	266	366	426	508	529
Total, worst case	246	658	584	271	267	
Sun reduction	0.18	0.32	0.40	0.57	0.59	
Oper. time red.	0.99	0.99	0.99	0.99	0.99	
Wind dir. red.	0.67	0.67	0.67	0.66	0.62	
Total reduction	0.12	0.22	0.27	0.38	0.36	
Total, real	29	142	155	103	97	

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

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

Project: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Lejas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (38)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

July		August		September		October		November		December	
1	04:44	05:30	20:44 (1.2)	06:32		07:32		07:38		14:59 (1.6)	08:40
	22:24	21:43	20:29	20:29		19:08		16:50	37	15:36 (1.6)	15:59
2	04:45	05:32	20:43 (1.2)	06:34		18:47 (1.5)	07:34	17:56 (4.7.C)	07:40	14:59 (1.6)	08:41
	22:24	21:41	20:26	12	18:59 (1.5)	19:06	11	18:07 (4.7.C)	16:48	15:36 (1.6)	15:58
3	04:46	05:34	20:43 (1.2)	06:36		18:44 (1.5)	07:36	17:53 (4.7.C)	07:42	14:59 (1.6)	08:43
	22:23	21:39	20:24	18	19:02 (1.5)	19:03	16	18:09 (4.7.C)	16:46	15:36 (1.6)	15:57
4	04:47	05:36	20:44 (1.2)	06:38		18:42 (1.5)	07:38	17:51 (4.7.C)	07:44	14:59 (1.6)	08:45
	22:23	21:37	20:21	22	19:04 (1.5)	19:00	19	18:10 (4.7.C)	16:44	15:36 (1.6)	15:56
5	04:48	05:38	20:44 (1.2)	06:40		18:40 (1.5)	07:40	17:50 (4.7.C)	07:46	14:59 (1.6)	08:46
	22:22	21:35	20:18	25	19:05 (1.5)	18:58	20	18:10 (4.7.C)	16:42	15:37 (1.6)	15:56
6	04:49	05:40	20:45 (1.2)	06:42		18:38 (1.5)	07:42	17:49 (4.7.C)	07:49	14:59 (1.6)	08:48
	22:21	21:33	20:16	28	19:06 (1.5)	18:55	22	18:11 (4.7.C)	16:39	15:36 (1.6)	15:55
7	04:50	05:42	20:44 (1.2)	06:44		18:37 (1.5)	07:44	17:48 (4.7.C)	07:51	15:00 (1.6)	08:49
	22:21	21:30	20:13	30	19:07 (1.5)	18:52	23	18:11 (4.7.C)	16:37	15:37 (1.6)	15:54
8	04:51	05:44	20:45 (1.2)	06:46		18:36 (1.5)	07:46	17:47 (4.7.C)	07:53	15:00 (1.6)	08:51
	22:20	21:28	20:10	31	19:07 (1.5)	18:50	23	18:10 (4.7.C)	16:35	15:36 (1.6)	15:54
9	04:52	05:46	20:46 (1.2)	06:48		18:35 (1.5)	07:48	17:46 (4.7.C)	07:55	15:00 (1.6)	08:52
	22:19	21:26	20:08	32	19:07 (1.5)	18:47	24	18:10 (4.7.C)	16:33	15:35 (1.6)	15:53
10	04:53	05:48	20:48 (1.2)	06:50		18:34 (1.5)	07:51	17:47 (4.7.C)	07:57	15:01 (1.6)	08:53
	22:18	21:24	20:05	34	19:08 (1.5)	18:44	23	18:10 (4.7.C)	16:31	15:36 (1.6)	15:53
11	04:55	05:50	06:52		18:33 (1.5)	07:53		17:47 (4.7.C)	07:59	15:01 (1.6)	08:55
	22:17	21:21	20:02	35	19:08 (1.5)	18:42	23	18:10 (4.7.C)	16:29	15:35 (1.6)	15:52
12	04:56	05:52	06:54		18:33 (1.5)	07:55		17:47 (4.7.C)	08:02	15:03 (1.6)	08:56
	22:16	21:19	20:00	34	19:07 (1.5)	18:39	21	18:08 (4.7.C)	16:27	15:35 (1.6)	15:52
13	04:57	05:54	06:56		18:32 (1.5)	07:57		17:48 (4.7.C)	08:04	15:03 (1.6)	08:57
	22:14	21:17	19:57	35	19:07 (1.5)	18:37	17	18:05 (4.7.C)	16:25	15:34 (1.6)	15:52
14	04:59	05:56	06:58		18:32 (1.5)	07:59		17:48 (4.7.C)	08:06	15:04 (1.6)	08:58
	22:13	21:14	19:54	35	19:07 (1.5)	18:34	14	18:02 (4.7.C)	16:24	15:33 (1.6)	15:52
15	05:00	05:58	07:00		18:32 (1.5)	08:01		17:51 (4.7.C)	08:08	15:05 (1.6)	08:59
	22:12	21:12	19:51	34	19:06 (1.5)	18:31	9	18:00 (4.7.C)	16:22	15:33 (1.6)	15:52
16	05:02	06:00	07:02		18:31 (1.5)	08:03		17:53 (4.7.C)	08:10	15:06 (1.6)	09:00
	22:11	21:09	19:49	34	19:05 (1.5)	18:29	4	17:57 (4.7.C)	16:20	15:31 (1.6)	15:52
17	05:03	06:02	07:04		18:31 (1.5)	08:05		08:12		15:08 (1.6)	09:01
	22:09	21:07	19:46	33	19:04 (1.5)	18:26		16:18	23	15:31 (1.6)	15:52
18	05:05	06:04	07:06		18:31 (1.5)	08:07		08:14		15:10 (1.6)	09:02
	22:08	21:05	19:43	32	19:03 (1.5)	18:24		16:17	19	15:29 (1.6)	15:52
19	05:07	06:06	07:08		18:32 (1.5)	08:09		08:16		15:12 (1.6)	09:03
	22:06	21:02	19:41	29	19:01 (1.5)	18:21		16:15	15	15:27 (1.6)	15:52
20	05:08	06:08	07:10		18:33 (1.5)	08:12		08:18		15:15 (1.6)	09:03
	22:05	21:00	19:38	27	19:00 (1.5)	18:19		16:13	10	15:25 (1.6)	15:53
21	05:10	06:10	07:12		18:34 (1.5)	08:14		08:21			09:04
	22:03	20:57	19:35	24	18:58 (1.5)	18:16		16:12			15:53
22	05:12	06:12	07:14		18:35 (1.5)	08:16		08:23			09:04
	22:02	20:55	19:32	21	18:56 (1.5)	18:14	9	16:23 (1.6)			15:53
23	05:13	20:52 (1.2)	06:14		18:37 (1.5)	08:18		16:10 (1.6)	08:25		09:05
	22:00	20:52 (1.2)	06:16	16	18:53 (1.5)	18:11	17	16:27 (1.6)	16:09		15:54
24	05:15	20:49 (1.2)	06:16		18:42 (1.5)	08:20		16:07 (1.6)	08:27		09:05
	21:58	9	20:58 (1.2)	20:50	19:27	6	18:48 (1.5)	18:09	22	16:29 (1.6)	16:07
25	05:17	20:48 (1.2)	06:18		07:20			15:05 (1.6)	08:28		09:06
	21:56	12	21:00 (1.2)	20:47	19:24			15:31 (1.6)	16:06		15:55
26	05:19	20:46 (1.2)	06:20		07:22			15:04 (1.6)	08:30		09:06
	21:55	15	21:01 (1.2)	20:44	19:22			15:32 (1.6)	16:05		15:56
27	05:20	20:46 (1.2)	06:22		07:24			15:03 (1.6)	08:32		09:07
	21:53	16	21:02 (1.2)	20:42	19:19			15:33 (1.6)	16:04		15:57
28	05:22	20:45 (1.2)	06:24		07:26			15:01 (1.6)	08:34		09:06
	21:51	18	21:03 (1.2)	20:39	19:16			15:34 (1.6)	16:02		15:58
29	05:24	20:44 (1.2)	06:26		07:28			15:01 (1.6)	08:36		09:06
	21:49	19	21:03 (1.2)	20:37	19:14			15:35 (1.6)	16:01		15:59
30	05:26	20:44 (1.2)	06:28		07:30			15:00 (1.6)	08:38		09:06
	21:47	19	21:03 (1.2)	20:34	19:11			15:35 (1.6)	16:00		16:00
31	05:28	20:44 (1.2)	06:30		07:35			15:00 (1.6)			09:06
	21:45	20	21:04 (1.2)	20:32	16:53	36		15:36 (1.6)			16:01
Potential sun hours	530		470		385		323		247		216
Total, worst case		132		141	627		539		612		
Sun reduction		0.57		0.52	0.46		0.31		0.16		
Oper. time red.		0.99		0.99	0.99		0.99		0.99		
Wind dir. red.		0.62		0.62	0.66		0.68		0.67		
Total reduction		0.35		0.32	0.30		0.21		0.10		
Total, real		47		45	191		112		64		

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Lejasgraveli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (53)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:09	22:25	21:44	20:29	19:09	16:51	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:04	17:02	18:05	20:10	21:13	22:10	22:25	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:39	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:13	22:23	21:37	20:21	19:01	16:44	15:57
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:08	17:09	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:48	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:11	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:53	16:38	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:18	20:23	21:25	22:17	22:20	21:29	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:49	07:56	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:03	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:29	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:28	15:52
13	08:59	08:05	06:55	06:32	05:21	04:40	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:33	20:38	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:39	05:02	06:00	07:02	08:04	08:11	09:01
	16:26	17:34	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:55	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:25	22:10	21:07	19:46	18:27	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:39	06:16	05:09	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:03	19:41	18:22	16:15	15:52
20	08:51	07:48	06:36	06:14	05:08	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:36	18:17	16:12	15:53
22	08:48	07:44	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:54
23	08:46	07:41	06:28	06:06	05:03	04:40	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:53	19:30	18:12	16:09	15:54
24	08:44	07:39	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:08	15:55
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:54	18:54	20:58	21:58	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:07
	16:47	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:57	04:56	04:41	05:21	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:29	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:17	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:43	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:06	22:25	21:48	20:35	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:58		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Lejnietki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (47)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:07 16:03	08:30 17:00	07:26 18:03	07:04 20:08	07:48 (4.2.) 08:21 (4.2.)	05:47 21:11
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	07:47 (4.2.) 08:20 (4.2.)	05:45 21:13
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	07:48 (4.2.) 08:20 (4.2.)	05:43 21:15
4	09:06 16:06	08:24 17:07	07:18 18:09	06:56 20:15	07:47 (4.2.) 08:19 (4.2.)	05:40 21:17
5	09:05 16:08	08:22 17:09	07:16 18:11	06:53 20:17	07:47 (4.2.) 08:18 (4.2.)	05:38 21:19
6	09:05 16:09	08:20 17:11	07:13 18:13	06:50 20:19	07:48 (4.2.) 08:18 (4.2.)	05:36 21:21
7	09:04 16:11	08:18 17:13	07:10 18:16	06:48 20:21	07:49 (4.2.) 08:16 (4.2.)	05:34 21:23
8	09:03 16:12	08:16 17:16	07:08 18:18	06:45 20:23	07:49 (4.2.) 08:14 (4.2.)	05:31 21:25
9	09:03 16:14	08:14 17:18	08:43 (4.3.) 08:52 (4.3.)	07:05 20:25	07:51 (4.2.) 08:13 (4.2.)	05:29 21:27
10	09:02 16:16	08:12 17:20	08:41 (4.3.) 08:55 (4.3.)	07:03 20:27	07:52 (4.2.) 08:10 (4.2.)	05:27 21:29
11	09:01 16:17	08:09 17:22	08:38 (4.3.) 08:56 (4.3.)	07:00 20:29	07:55 (4.2.) 08:07 (4.2.)	05:25 21:31
12	09:00 16:19	08:07 17:25	08:37 (4.3.) 08:58 (4.3.)	06:57 20:31	05:23 21:33	04:41 22:21
13	08:59 16:21	08:05 17:27	08:36 (4.3.) 08:59 (4.3.)	06:55 20:33	05:21 21:35	04:41 22:22
14	08:58 16:23	08:03 17:29	08:35 (4.3.) 09:00 (4.3.)	06:52 20:35	05:19 21:37	04:40 22:23
15	08:57 16:24	08:00 17:31	08:34 (4.3.) 09:00 (4.3.)	06:49 20:38	05:17 21:39	04:40 22:23
16	08:56 16:26	07:58 17:34	08:34 (4.3.) 09:01 (4.3.)	06:47 20:40	05:15 21:41	04:40 22:24
17	08:54 16:28	07:56 17:36	08:34 (4.3.) 09:00 (4.3.)	06:44 20:42	05:13 21:43	04:40 22:24
18	08:53 16:30	07:53 17:38	08:34 (4.3.) 09:01 (4.3.)	06:41 20:44	05:11 21:45	04:40 22:25
19	08:52 16:32	07:51 17:40	08:33 (4.3.) 09:00 (4.3.)	06:39 20:46	05:10 21:47	04:39 22:25
20	08:50 16:34	07:48 17:43	08:34 (4.3.) 09:01 (4.3.)	06:36 20:48	05:08 21:49	04:40 22:26
21	08:49 16:36	07:46 17:45	08:34 (4.3.) 09:00 (4.3.)	06:33 20:50	05:06 21:50	04:40 22:26
22	08:48 16:38	07:44 17:47	08:35 (4.3.) 09:00 (4.3.)	06:31 20:52	05:04 21:52	04:40 22:26
23	08:46 16:40	07:41 17:49	08:35 (4.3.) 08:58 (4.3.)	06:28 20:54	05:03 21:54	04:40 22:26
24	08:44 16:43	07:39 17:52	08:36 (4.3.) 08:57 (4.3.)	06:25 20:56	05:01 21:56	04:40 22:26
25	08:43 16:45	07:36 17:54	08:38 (4.3.) 08:56 (4.3.)	06:23 20:58	05:00 21:57	04:41 22:26
26	08:41 16:47	07:34 17:56	08:39 (4.3.) 08:53 (4.3.)	06:20 21:01	04:58 21:59	04:41 22:26
27	08:39 16:49	07:31 17:58	08:43 (4.3.) 08:50 (4.3.)	06:17 21:03	04:57 22:01	04:42 22:26
28	08:38 16:51	07:29 18:00	06:14 19:00	06:50 (4.2.) 07:22 (4.2.)	05:54 21:05	04:42 22:26
29	08:36 16:53		07:12 20:02	07:49 (4.2.) 08:22 (4.2.)	05:52 21:07	04:43 22:26
30	08:34 16:56		07:09 20:04	07:48 (4.2.) 08:21 (4.2.)	05:50 21:09	04:44 22:25
31	08:32 16:58		07:06 20:06	07:48 (4.2.) 08:22 (4.2.)	04:51 22:07	
Potential sun hours	235	266	366	426	508	529
Total, worst case		404	271	295		
Sun reduction		0.32	0.40	0.57		
Oper. time red.		0.99	0.99	0.99		
Wind dir. red.		0.60	0.66	0.66		
Total reduction		0.19	0.26	0.37		
Total, real		77	70	109		

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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Lejniki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (47)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:32	07:54 (4.2.)	07:32	07:38
	22:25	21:43	20:29	08:06 (4.2.)	19:09	08:10 (4.3.)
2	04:45	05:32	06:34	07:51 (4.2.)	07:34	13 08:23 (4.3.)
	22:24	21:41	20:27	08:09 (4.2.)	19:06	08:13 (4.3.)
3	04:46	05:34	06:36	07:49 (4.2.)	07:37	8 08:21 (4.3.)
	22:24	21:39	20:24	08:11 (4.2.)	19:03	08:43
4	04:47	05:36	06:38	07:47 (4.2.)	07:39	16:46
	22:23	21:37	20:21	08:12 (4.2.)	19:01	15:58
5	04:48	05:38	06:40	07:46 (4.2.)	07:41	07:45
	22:23	21:35	20:19	08:13 (4.2.)	18:58	08:45
6	04:49	05:40	06:42	07:44 (4.2.)	07:43	16:42
	22:22	21:33	20:16	08:13 (4.2.)	18:55	08:48
7	04:50	05:42	06:44	07:43 (4.2.)	07:45	16:40
	22:21	21:31	20:13	08:13 (4.2.)	18:53	15:55
8	04:51	05:44	06:46	07:42 (4.2.)	07:47	16:38
	22:20	21:28	20:11	08:14 (4.2.)	18:50	07:53
9	04:53	05:46	06:48	07:41 (4.2.)	07:49	16:36
	22:19	21:26	20:08	08:14 (4.2.)	18:47	15:54
10	04:54	05:48	06:50	07:40 (4.2.)	07:51	07:56
	22:18	21:24	20:05	08:14 (4.2.)	18:45	08:52
11	04:55	05:50	06:52	07:40 (4.2.)	07:53	16:34
	22:17	21:22	20:03	08:13 (4.2.)	18:42	15:53
12	04:56	05:52	06:54	07:40 (4.2.)	07:55	16:30
	22:16	21:19	20:00	08:13 (4.2.)	18:40	08:02
13	04:58	05:54	06:56	07:40 (4.2.)	07:57	16:28
	22:15	21:17	19:57	08:13 (4.2.)	18:37	15:53
14	04:59	05:56	06:58	07:40 (4.2.)	07:59	08:04
	22:14	21:15	19:55	08:12 (4.2.)	18:34	16:26
15	05:01	05:58	07:00	07:40 (4.2.)	08:01	08:06
	22:12	21:12	19:52	08:11 (4.2.)	18:32	16:24
16	05:02	06:00	07:02	07:40 (4.2.)	08:04	09:13 (4.3.)
	22:11	21:10	19:49	08:10 (4.2.)	18:29	09:24 (4.3.)
17	05:04	06:02	07:04	07:41 (4.2.)	08:06	09:10 (4.3.)
	22:10	21:07	19:46	08:09 (4.2.)	18:27	09:26 (4.3.)
18	05:05	06:04	07:06	07:41 (4.2.)	08:08	09:08 (4.3.)
	22:08	21:05	19:44	08:08 (4.2.)	18:24	09:27 (4.3.)
19	05:07	06:06	07:08	07:42 (4.2.)	08:10	09:07 (4.3.)
	22:07	21:03	19:41	08:06 (4.2.)	18:22	09:29 (4.3.)
20	05:09	06:08	07:10	07:44 (4.2.)	08:12	09:06 (4.3.)
	22:05	21:00	19:38	08:04 (4.2.)	18:19	09:30 (4.3.)
21	05:10	06:10	07:12	07:46 (4.2.)	08:14	09:30 (4.3.)
	22:04	20:58	19:36	08:01 (4.2.)	18:17	09:05 (4.3.)
22	05:12	06:12	07:14	07:51 (4.2.)	08:16	09:31 (4.3.)
	22:02	20:55	19:33	07:56 (4.2.)	18:14	08:23
23	05:14	06:14	07:16		08:18	09:31 (4.3.)
	22:00	20:53	19:30		18:12	08:25
24	05:15	06:16	07:18		08:21	09:04 (4.3.)
	21:59	20:50	19:27		18:09	16:09
25	05:17	06:18	07:20		07:23	08:27
	21:57	20:47	19:25		17:07	16:08
26	05:19	06:20	07:22		07:25	08:31 (4.3.)
	21:55	20:45	19:22		17:05	08:04 (4.3.)
27	05:21	06:22	07:24		07:27	08:30 (4.3.)
	21:53	20:42	19:19		17:02	16:05
28	05:23	06:24	07:26		07:29	08:05 (4.3.)
	21:51	20:40	19:17		17:00	08:35
29	05:25	06:26	07:28		07:31	08:29 (4.3.)
	21:49	20:37	19:14		16:58	16:03
30	05:26	06:28	07:30		07:34	08:05 (4.3.)
	21:47	20:35	19:11		16:55	16:02
31	05:28	06:30			07:36	08:27 (4.3.)
	21:45	20:32			16:53	08:08 (4.3.)
Potential sun hours	530	470	385	323	247	16:01
Total, worst case			573	386	21	216
Sun reduction			0.46	0.31	0.16	
Oper. time red.			0.99	0.99	0.99	
Wind dir. red.			0.66	0.60	0.60	
Total reduction			0.30	0.18	0.09	
Total, real			170	71	2	

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Lidakas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (50)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07 16:03	08:30 17:00	07:26 18:03	07:04 20:08	05:47 21:11	04:50 22:08	04:44 22:25	05:30 21:44	06:32 20:29	07:33 19:09	07:38 16:51	08:40 16:00
2	09:06 16:04	08:28 17:02	07:24 18:05	07:01 20:10	05:45 21:13	04:49 22:10	04:45 22:24	05:32 21:41	06:34 20:27	07:35 19:06	07:40 16:49	08:42 15:59
3	09:06 16:05	08:26 17:05	07:21 18:07	06:58 20:13	05:43 21:15	04:48 22:11	04:46 22:24	05:34 21:39	06:36 20:24	07:37 19:03	07:43 16:46	08:43 15:58
4	09:06 16:07	08:24 17:07	07:18 18:09	06:56 20:15	05:40 21:17	04:47 22:13	04:47 22:23	05:36 21:37	06:38 20:21	07:39 19:01	07:45 16:44	08:45 15:57
5	09:05 16:08	08:22 17:09	07:16 18:11	06:53 20:17	05:38 21:19	04:46 22:14	04:48 22:23	05:38 21:35	06:40 20:19	07:41 18:58	07:47 16:42	08:47 15:56
6	09:05 16:09	08:20 17:11	07:13 18:13	06:50 20:19	05:36 21:21	04:45 22:15	04:49 22:22	05:40 21:33	06:42 20:16	07:43 18:55	07:49 16:40	08:48 15:55
7	09:04 16:11	08:18 17:14	07:11 18:16	06:48 20:21	05:34 21:23	04:44 22:16	04:50 22:21	05:42 21:31	06:44 20:13	07:45 18:53	07:51 16:38	08:50 15:55
8	09:03 16:12	08:16 17:16	07:08 18:18	06:45 20:23	05:32 21:25	04:44 22:17	04:51 22:20	05:44 21:29	06:46 20:11	07:47 18:50	07:53 16:36	08:51 15:54
9	09:03 16:14	08:14 17:18	07:05 18:20	06:43 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:48	07:56 16:34	08:52 15:54
10	09:02 16:16	08:12 17:20	07:03 18:22	06:40 20:27	05:27 21:29	04:42 22:19	04:54 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:58 16:32	08:54 15:53
11	09:01 16:17	08:10 17:23	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:20	04:55 22:17	05:50 21:22	06:52 20:03	07:53 18:42	08:00 16:30	08:55 15:53
12	09:00 16:19	08:07 17:25	06:57 18:26	06:35 20:31	05:23 21:33	04:41 22:21	04:57 22:16	05:52 21:19	06:54 20:00	07:55 18:40	08:02 16:28	08:56 15:53
13	08:59 16:21	08:05 17:27	06:55 18:28	06:32 20:33	05:21 21:35	04:41 22:22	04:58 22:15	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:53
14	08:58 16:23	08:03 17:29	06:52 18:31	06:29 20:36	05:19 21:37	04:40 22:23	04:59 22:14	05:56 21:15	06:58 19:55	07:59 18:35	08:06 16:24	08:59 15:52
15	08:57 16:25	08:00 17:32	06:49 18:33	06:27 20:38	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:02 18:32	08:09 16:22	09:00 15:52
16	08:56 16:26	07:58 17:34	06:47 18:35	06:24 20:40	05:15 21:41	04:40 22:24	05:02 22:11	06:00 21:10	07:02 19:49	08:04 18:29	08:11 16:21	09:01 15:52
17	08:55 16:28	07:56 17:36	06:44 18:37	06:22 20:42	05:13 21:43	04:40 22:24	05:04 22:10	06:02 21:08	07:04 19:47	08:06 18:27	08:13 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:44	05:12 21:45	04:40 22:25	05:05 22:08	06:04 21:05	07:06 19:44	08:08 18:24	08:15 16:17	09:02 15:53
19	08:52 16:32	07:51 17:41	06:39 18:41	06:17 20:46	05:10 21:47	04:40 22:25	05:07 22:07	06:06 21:03	07:08 19:41	08:10 18:22	08:17 16:15	09:03 15:53
20	08:51 16:34	07:49 17:43	06:36 18:43	06:14 20:48	05:08 21:49	04:40 22:26	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:19 16:14	09:04 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:12 20:50	05:06 21:51	04:40 22:26	05:10 22:04	06:10 20:58	07:12 19:36	08:14 18:17	08:21 16:12	09:04 15:54
22	08:48 16:38	07:44 17:47	06:31 18:47	06:09 20:52	05:05 21:52	04:40 22:26	05:12 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:11	09:05 15:54
23	08:46 16:41	07:41 17:49	06:28 18:50	06:07 20:54	05:03 21:54	04:40 22:26	05:14 22:00	06:14 20:53	07:16 19:30	08:19 18:12	08:25 16:09	09:05 15:54
24	08:44 16:43	07:39 17:52	06:25 18:52	06:04 20:56	05:01 21:56	04:40 22:26	05:16 21:59	06:16 20:50	07:18 19:28	08:21 18:10	08:27 16:08	09:06 15:55
25	08:43 16:45	07:36 17:54	06:23 18:54	06:02 20:59	05:00 21:58	04:41 22:26	05:17 21:57	06:18 20:48	07:20 19:25	08:23 17:07	08:29 16:07	09:06 15:56
26	08:41 16:47	07:34 17:56	06:20 18:56	05:59 21:01	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	08:25 17:05	08:31 16:05	09:06 15:57
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:03	04:57 22:01	04:42 22:26	05:21 21:53	06:22 20:42	07:24 19:19	08:27 17:02	08:33 16:04	09:07 15:57
28	08:38 16:51	07:29 18:00	06:15 19:00	05:54 21:05	04:55 22:02	04:42 22:26	05:23 21:51	06:24 20:40	07:26 19:17	08:29 17:00	08:35 16:03	09:07 15:58
29	08:36 16:53		07:12 20:02	05:52 21:07	04:54 22:04	04:43 22:26	05:25 21:49	06:26 20:37	07:28 19:14	08:32 16:58	08:36 16:02	09:07 15:59
30	08:34 16:56		07:09 20:04	05:50 21:09	04:53 22:06	04:44 22:25	05:27 21:48	06:28 20:35	07:31 19:11	08:34 16:55	08:38 16:01	09:07 16:00
31	08:32 16:58		07:06 20:06		04:52 22:07		05:28 21:46	06:30 20:32		07:36 16:53		09:07 16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Medni - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (62)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:47	08:47
	16:07	17:09	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:55	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:02	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:02	18:42	16:29	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:35	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:27	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:50	22:26	22:04	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:55
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:56	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Meijas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (65)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07 16:02	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:11	04:50 22:08	04:44 22:25	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:50	08:40 15:59
2	09:06 16:03	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	04:49 22:10	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:42 15:58
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	04:48 22:11	04:46 22:24	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:57
4	09:06 16:06	08:24 17:06	07:18 18:09	06:55 20:14	05:40 21:17	04:47 22:12	04:46 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:45 15:56
5	09:05 16:07	08:22 17:09	07:16 18:11	06:53 20:16	05:38 21:19	04:46 22:14	04:47 22:23	05:38 21:35	06:40 20:19	07:40 18:58	07:47 16:42	08:47 15:56
6	09:05 16:09	08:20 17:11	07:13 18:13	06:50 20:19	05:35 21:21	04:45 22:15	04:49 22:22	05:40 21:33	06:42 20:16	07:42 18:55	07:49 16:39	08:48 15:55
7	09:04 16:10	08:18 17:13	07:10 18:15	06:47 20:21	05:33 21:23	04:44 22:16	04:50 22:21	05:42 21:31	06:44 20:13	07:45 18:52	07:51 16:37	08:50 15:54
8	09:03 16:12	08:16 17:15	07:08 18:17	06:45 20:23	05:31 21:25	04:43 22:17	04:51 22:20	05:44 21:28	06:46 20:11	07:47 18:50	07:53 16:35	08:51 15:54
9	09:03 16:13	08:14 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:42 22:18	04:52 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:33	08:52 15:53
10	09:02 16:15	08:12 17:20	07:02 18:22	06:39 20:27	05:27 21:29	04:42 22:19	04:53 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:58 16:31	08:54 15:53
11	09:01 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:41 22:20	04:55 22:17	05:50 21:22	06:52 20:02	07:53 18:42	08:00 16:29	08:55 15:52
12	09:00 16:19	08:07 17:24	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:21	04:56 22:16	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:27	08:56 15:52
13	08:59 16:20	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:40 22:22	04:57 22:15	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:25	08:57 15:52
14	08:58 16:22	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:23	04:59 22:14	05:56 21:15	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:57 16:24	08:00 17:31	06:49 18:32	06:26 20:37	05:17 21:39	04:40 22:23	05:00 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:56 16:26	07:58 17:33	06:46 18:34	06:24 20:39	05:15 21:41	04:39 22:24	05:02 22:11	06:00 21:10	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:42	05:13 21:43	04:39 22:24	05:03 22:10	06:02 21:07	07:04 19:46	08:05 18:26	08:13 16:18	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:44	05:11 21:45	04:39 22:25	05:05 22:08	06:04 21:05	07:06 19:44	08:08 18:24	08:15 16:17	09:02 15:52
19	08:52 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:09 21:47	04:39 22:25	05:06 22:07	06:06 21:02	07:08 19:41	08:10 18:21	08:17 16:15	09:03 15:52
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:07 21:49	04:39 22:26	05:08 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:19 16:13	09:04 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:39 22:26	05:10 22:04	06:10 20:57	07:12 19:35	08:14 18:16	08:21 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:39 22:26	05:12 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:10	09:05 15:53
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:02 21:54	04:40 22:26	05:13 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:25 16:09	09:05 15:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:56	04:40 22:26	05:15 21:59	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:07	09:06 15:54
25	08:43 16:44	07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57	04:40 22:26	05:17 21:57	06:18 20:47	07:20 19:25	07:23 17:07	08:29 16:06	09:06 15:55
26	08:41 16:46	07:33 17:56	06:20 18:56	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	07:25 17:04	08:31 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:56 21:03	04:56 22:01	04:41 22:26	05:20 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:33 16:03	09:07 15:57
28	08:38 16:51	07:28 18:00	06:14 19:00	05:54 21:05	04:55 22:02	04:42 22:26	05:22 21:51	06:24 20:40	07:26 19:16	07:29 17:00	08:34 16:02	09:07 15:58
29	08:36 16:53		07:11 20:02	05:52 21:07	04:53 22:04	04:42 22:26	05:24 21:49	06:26 20:37	07:28 19:14	07:31 16:57	08:36 16:01	09:07 15:59
30	08:34 16:55		07:09 20:04	05:49 21:09	04:52 22:05	04:43 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:34 16:55	08:38 16:00	09:07 16:00
31	08:32 16:57		07:06 20:06		04:51 22:07		05:28 21:45	06:30 20:32		07:36 16:53		09:07 16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Merani - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (8)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:04 20:08	05:47 21:11	04:50 22:08	04:44 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 16:00
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:59
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:43 21:15	04:48 22:11	04:46 22:23	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:06	08:24 17:07	07:18 18:09	06:56 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:44 15:57
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	04:45 22:14	04:49 22:21	05:40 21:33	06:42 20:16	07:42 18:55	07:49 16:40	08:48 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:48 20:21	05:34 21:23	04:44 22:16	04:50 22:21	05:42 21:30	06:44 20:13	07:45 18:53	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:16	07:08 18:18	06:45 20:23	05:31 21:25	04:44 22:17	04:51 22:20	05:44 21:28	06:46 20:10	07:47 18:50	07:53 16:36	08:51 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	04:54 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:57 16:32	08:53 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:20	04:55 22:17	05:50 21:21	06:52 20:02	07:53 18:42	07:59 16:30	08:55 15:53
12	09:00 16:19	08:07 17:25	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:20	04:56 22:16	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:28	08:56 15:53
13	08:59 16:21	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:41 22:21	04:58 22:14	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:52
14	08:57 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:25	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:46 18:35	06:24 20:39	05:15 21:41	04:40 22:23	05:02 22:11	06:00 21:09	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:22 20:41	05:13 21:43	04:40 22:24	05:04 22:09	06:02 21:07	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:45	04:40 22:24	05:05 22:08	06:04 21:05	07:06 19:43	08:07 18:24	08:14 16:17	09:02 15:53
19	08:51 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:10 21:46	04:40 22:25	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:16 16:15	09:02 15:53
20	08:50 16:34	07:48 17:43	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:18 16:14	09:03 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:25	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:17	08:21 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:40 22:26	05:12 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:11	09:04 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	04:40 22:26	05:14 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:25 16:09	09:05 15:54
24	08:44 16:43	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:15 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:26 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:53	06:01 20:58	05:00 21:57	04:41 22:26	05:17 21:56	06:18 20:47	07:20 19:25	07:22 17:07	08:28 16:06	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	07:25 17:05	08:30 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:26	05:21 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:25	05:23 21:51	06:24 20:39	07:26 19:16	07:29 17:00	08:34 16:03	09:06 15:58
29	08:35 16:53		07:12 20:02	05:52 21:06	04:54 22:03	04:43 22:25	05:25 21:49	06:26 20:37	07:28 19:14	07:31 16:57	08:36 16:02	09:06 15:59
30	08:34 16:55		07:09 20:04	05:49 21:09	04:53 22:05	04:44 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:01	09:06 16:00
31	08:32 16:58		07:06 20:06		04:51 22:06		05:28 21:45	06:30 20:32		07:36 16:53		09:06 16:01
Potential sun hours	235	266	366	426	508	529	529	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Muižnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (71)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:38	06:40	07:40	07:47	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:14	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:31	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:57
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:58
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	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ozolu iela 23, Kursiņš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (4)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:10	04:50 22:08	04:44 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 16:00
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:59
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4	09:05 16:06	08:24 17:07	07:18 18:09	06:55 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:44 15:57
5	09:04 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	04:45 22:14	04:49 22:21	05:40 21:32	06:42 20:16	07:42 18:55	07:49 16:40	08:47 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:48 20:20	05:34 21:23	04:44 22:15	04:50 22:20	05:42 21:30	06:44 20:13	07:44 18:52	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:16	07:08 18:17	06:45 20:23	05:31 21:25	04:44 22:17	04:51 22:20	05:44 21:28	06:46 20:10	07:46 18:50	07:53 16:36	08:50 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	04:54 22:18	05:48 21:23	06:50 20:05	07:51 18:45	07:57 16:32	08:53 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:19	04:55 22:17	05:50 21:21	06:52 20:02	07:53 18:42	07:59 16:30	08:54 15:53
12	08:59 16:19	08:07 17:25	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:20	04:56 22:15	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:28	08:56 15:53
13	08:58 16:21	08:04 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:41 22:21	04:58 22:14	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:52
14	08:57 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:24	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:46 18:34	06:24 20:39	05:15 21:41	04:40 22:23	05:02 22:10	06:00 21:09	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:41	05:13 21:43	04:40 22:24	05:04 22:09	06:02 21:07	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:44	04:40 22:24	05:05 22:08	06:04 21:05	07:06 19:43	08:07 18:24	08:14 16:17	09:02 15:53
19	08:51 16:32	07:50 17:40	06:38 18:41	06:16 20:45	05:10 21:46	04:40 22:25	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:16 16:15	09:02 15:53
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:18 16:14	09:03 15:53
21	08:48 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:25	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:17	08:20 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:40 22:25	05:12 22:01	06:12 20:55	07:14 19:33	08:16 18:14	08:22 16:11	09:04 15:54
23	08:45 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:53	04:40 22:26	05:14 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:24 16:09	09:05 15:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:15 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:26 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:53	06:01 20:58	05:00 21:57	04:41 22:26	05:17 21:56	06:18 20:47	07:20 19:25	07:22 17:07	08:28 16:06	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:54	06:20 20:44	07:22 19:22	07:25 17:04	08:30 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:25	05:21 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:25	05:23 21:51	06:24 20:39	07:26 19:16	07:29 17:00	08:34 16:03	09:06 15:58
29	08:35 16:53		07:12 20:02	05:52 21:06	04:54 22:03	04:43 22:25	05:25 21:49	06:26 20:37	07:28 19:14	07:31 16:57	08:36 16:02	09:06 15:59
30	08:34 16:55		07:09 20:04	05:49 21:08	04:53 22:05	04:44 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:01	09:06 16:00
31	08:32 16:58		07:06 20:06		04:51 22:06		05:28 21:45	06:30 20:32		07:35 16:53		09:06 16:01
Potential sun hours	235	266	366	426	508	529	529	469	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Paegli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (35)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:02	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:11	20:04 (4.4.A) 22:08
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	25 20:04 (4.4.A) 22:09
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	25 20:04 (4.4.A) 22:11
4	09:05 16:06	08:24 17:06	07:18 18:09	06:55 20:14	05:40 21:17	24 20:04 (4.4.A) 22:12
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	23 20:05 (4.4.A) 22:13
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	22 20:05 (4.4.A) 22:15
7	09:04 16:11	08:18 17:13	07:10 18:15	06:47 20:20	05:33 21:23	21 20:06 (4.4.A) 22:16
8	09:03 16:12	08:16 17:15	07:08 18:17	06:45 20:23	05:31 21:25	19 20:07 (4.4.A) 22:17
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	17 20:09 (4.4.A) 22:18
10	09:01 16:15	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	13 20:11 (4.4.A) 22:19
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	9 20:20 (4.4.A) 22:20
12	09:00 16:19	08:07 17:24	06:57 18:26	06:34 20:31	05:23 21:33	46 20:20 (4.4.A) 22:21
13	08:59 16:21	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	46 20:21 (4.4.A) 22:21
14	08:58 16:22	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	47 20:22 (4.4.A) 22:22
15	08:56 16:24	08:00 17:31	06:49 18:32	06:26 20:37	05:17 21:39	47 20:23 (4.4.A) 22:23
16	08:55 16:26	07:58 17:33	06:46 18:34	06:24 20:39	05:15 21:41	47 20:24 (4.4.A) 22:23
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:41	05:13 21:43	20:40 (4.7.A) 22:24
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:45	12 20:52 (4.7.A) 22:24
19	08:51 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:09 21:46	17 20:54 (4.7.A) 22:25
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:08 21:48	22 20:57 (4.7.A) 22:25
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	25 20:58 (4.7.A) 22:25
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	28 21:00 (4.7.A) 22:26
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	30 21:01 (4.7.A) 22:26
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	32 21:02 (4.7.A) 22:26
25	08:42 16:44	07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57	34 21:04 (4.7.A) 22:26
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	36 21:04 (4.7.A) 22:26
27	08:39 16:49	07:31 17:58	06:17 18:57	05:56 21:02	04:56 22:00	37 21:05 (4.7.A) 22:26
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	38 21:06 (4.7.A) 22:26
29	08:35 16:53		07:11 20:02	05:52 21:06	04:54 22:04	39 21:07 (4.7.A) 22:25
30	08:34 16:55		07:09 20:04	05:49 21:09	04:52 22:05	40 21:06 (4.7.A) 22:25
31	08:32 16:57		07:06 20:06		04:51 22:07	41 21:07 (4.7.A) 22:25
Potential sun hours	235	266	366	426	508	529
Total, worst case				181	671	1381
Sun reduction				0.57	0.59	0.62
Oper. time red.				0.99	0.99	0.99
Wind dir. red.				0.63	0.62	0.61
Total reduction				0.36	0.36	0.37
Total, real				65	240	516

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Paegli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (35)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

July			August			September			October			November			December		
1	04:44	20:30 (4.7.A)	05:30			06:32			07:32			07:38			08:40		
	22:24	47	21:17 (4.7.A)	21:43		20:29			19:08			16:50			15:59		
2	04:45	20:31 (4.7.A)	05:32		20:25 (4.4.A)	06:34			07:34			07:40			08:41		
	22:24	46	21:17 (4.7.A)	21:41	3	20:28 (4.4.A)	20:26		19:06			16:48			15:58		
3	04:46	20:30 (4.7.A)	05:34		20:20 (4.4.A)	06:36			07:36			07:42			08:43		
	22:23	46	21:16 (4.7.A)	21:39	11	20:31 (4.4.A)	20:24		19:03			16:46			15:57		
4	04:47	20:31 (4.7.A)	05:36		20:18 (4.4.A)	06:38			07:38			07:44			08:45		
	22:23	45	21:16 (4.7.A)	21:37	15	20:33 (4.4.A)	20:21		19:00			16:44			15:57		
5	04:48	20:31 (4.7.A)	05:38		20:17 (4.4.A)	06:40			07:40			07:46			08:46		
	22:22	46	21:17 (4.7.A)	21:35	17	20:34 (4.4.A)	20:18		18:58			16:42			15:56		
6	04:49	20:32 (4.7.A)	05:40		20:16 (4.4.A)	06:42			07:42			07:49			08:48		
	22:21	45	21:17 (4.7.A)	21:33	19	20:35 (4.4.A)	20:16		18:55			16:40			15:55		
7	04:50	20:32 (4.7.A)	05:42		20:15 (4.4.A)	06:44			07:44			07:51			08:49		
	22:21	45	21:17 (4.7.A)	21:30	21	20:36 (4.4.A)	20:13		18:52			16:37			15:55		
8	04:51	20:32 (4.7.A)	05:44		20:14 (4.4.A)	06:46			07:46			07:53			08:51		
	22:20	44	21:16 (4.7.A)	21:28	22	20:36 (4.4.A)	20:10		18:50			16:35			15:54		
9	04:52	20:33 (4.7.A)	05:46		20:13 (4.4.A)	06:48			07:49			07:55			08:52		
	22:19	43	21:16 (4.7.A)	21:26	24	20:37 (4.4.A)	20:08		18:47			16:33			15:53		
10	04:54	20:34 (4.7.A)	05:48		20:13 (4.4.A)	06:50			07:51			07:57			08:53		
	22:18	43	21:17 (4.7.A)	21:24	24	20:37 (4.4.A)	20:05		18:44			16:31			15:53		
11	04:55	20:34 (4.7.A)	05:50		20:13 (4.4.A)	06:52			07:53			07:59			08:55		
	22:17	43	21:17 (4.7.A)	21:21	24	20:37 (4.4.A)	20:02		18:42			16:29			15:53		
12	04:56	20:34 (4.7.A)	05:52		20:13 (4.4.A)	06:54			07:55			08:02			08:56		
	22:16	42	21:16 (4.7.A)	21:19	24	20:37 (4.4.A)	20:00		18:39			16:28			15:52		
13	04:58	20:35 (4.7.A)	05:54		20:13 (4.4.A)	06:56			07:57			08:04			08:57		
	22:14	41	21:16 (4.7.A)	21:17	24	20:37 (4.4.A)	19:57		18:37			16:26			15:52		
14	04:59	20:36 (4.7.A)	05:56		20:12 (4.4.A)	06:58			07:59			08:06			08:58		
	22:13	40	21:16 (4.7.A)	21:14	24	20:36 (4.4.A)	19:54		18:34			16:24			15:52		
15	05:00	20:36 (4.7.A)	05:58		20:12 (4.4.A)	07:00			08:01			08:08			08:59		
	22:12	39	21:15 (4.7.A)	21:12	24	20:36 (4.4.A)	19:52		18:32			16:22			15:52		
16	05:02	20:36 (4.7.A)	06:00		20:12 (4.4.A)	07:02			08:03			08:10			09:00		
	22:11	39	21:15 (4.7.A)	21:09	23	20:35 (4.4.A)	19:49		18:29			16:20			15:52		
17	05:04	20:38 (4.7.A)	06:02		20:13 (4.4.A)	07:04			08:05			08:12			09:01		
	22:09	37	21:15 (4.7.A)	21:07	22	20:35 (4.4.A)	19:46		18:26			16:18			15:52		
18	05:05	20:38 (4.7.A)	06:04		20:13 (4.4.A)	07:06			08:07			08:14			09:02		
	22:08	36	21:14 (4.7.A)	21:05	20	20:33 (4.4.A)	19:43		18:24			16:17			15:52		
19	05:07	20:39 (4.7.A)	06:06		20:14 (4.4.A)	07:08			08:10			08:16			09:03		
	22:06	35	21:14 (4.7.A)	21:02	17	20:31 (4.4.A)	19:41		18:21			16:15			15:52		
20	05:08	20:40 (4.7.A)	06:08		20:16 (4.4.A)	07:10			08:12			08:18			09:03		
	22:05	33	21:13 (4.7.A)	21:00	12	20:28 (4.4.A)	19:38		18:19			16:14			15:53		
21	05:10	20:41 (4.7.A)	06:10		20:18 (4.4.A)	07:12			08:14			08:21			09:04		
	22:03	31	21:12 (4.7.A)	20:57	8	20:26 (4.4.A)	19:35		18:16			16:12			15:53		
22	05:12	20:42 (4.7.A)	06:12			07:14			08:16			08:23			09:04		
	22:02	29	21:11 (4.7.A)	20:55		19:33			18:14			16:10			15:54		
23	05:13	20:43 (4.7.A)	06:14			07:16			08:18			08:25			09:05		
	22:00	27	21:10 (4.7.A)	20:52		19:30			18:12			16:09			15:54		
24	05:15	20:44 (4.7.A)	06:16			07:18			08:20			08:27			09:05		
	21:58	24	21:08 (4.7.A)	20:50		19:27			18:09			16:08			15:55		
25	05:17	20:46 (4.7.A)	06:18			07:20			07:22			08:28			09:06		
	21:56	20	21:06 (4.7.A)	20:47		19:24			17:07			16:06			15:55		
26	05:19	20:49 (4.7.A)	06:20			07:22			07:25			08:30			09:06		
	21:55	15	21:04 (4.7.A)	20:45		19:22			17:04			16:05			15:56		
27	05:21	20:52 (4.7.A)	06:22			07:24			07:27			08:32			09:06		
	21:53	8	21:00 (4.7.A)	20:42		19:19			17:02			16:04			15:57		
28	05:22		06:24			07:26			07:29			08:34			09:06		
	21:51		20:39			19:16			17:00			16:02			15:58		
29	05:24		06:26			07:28			07:31			08:36			09:06		
	21:49		20:37			19:14			16:57			16:01			15:59		
30	05:26		06:28			07:30			07:33			08:38			09:06		
	21:47		20:34			19:11			16:55			16:00			16:00		
31	05:28		06:30						07:35						09:06		
	21:45		20:32						16:53						16:01		
Potential sun hours	530		470			385			323			247			216		
Total, worst case		989		378													
Sun reduction		0.57		0.52													
Oper. time red.		0.99		0.99													
Wind dir. red.		0.61		0.63													
Total reduction		0.35		0.32													
Total, real		342		122													

Table layout: For each day in each month the following 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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Parka iela 1, Evarž i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (78)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December	
1	09:06 16:02 18	14:42 (1.1) 15:00 (1.1) 18:02	08:30 16:59 18:02	07:26 18:02 20:08	07:03 21:11 22:08	05:47 22:25 21:43	04:50 22:25 21:43	04:44 22:25 21:43	05:30 21:43 20:29	06:32 20:29 19:08	07:32 16:50 15:59	07:38 16:50 15:59	
2	09:06 16:03 18	14:43 (1.1) 15:01 (1.1) 17:02	08:28 17:02 18:04	07:23 18:04 20:10	05:44 21:13 22:10	04:49 22:24 21:41	04:45 22:24 21:41	05:32 21:41 20:26	06:34 20:26 19:06	07:34 16:48 15:58	08:41 15:58 14:41 (1.1)	08:41 15:58 14:41 (1.1)	14:34 (1.1)
3	09:06 16:05 18	14:43 (1.1) 15:01 (1.1) 17:04	08:26 17:04 18:06	07:21 18:06 20:12	05:42 21:15 22:11	04:48 22:24 21:39	04:45 22:24 21:39	05:34 21:39 20:24	06:36 20:24 19:03	07:36 16:46 15:57	08:43 15:57 14:43 (1.1)	08:43 15:57 14:43 (1.1)	14:33 (1.1)
4	09:05 16:06 16	14:44 (1.1) 15:00 (1.1) 17:06	08:24 17:06 18:09	07:18 18:09 20:14	05:50 21:17 22:12	04:46 22:23 21:37	04:46 22:23 21:37	05:36 21:37 20:21	06:38 20:21 19:00	07:38 16:44 15:56	08:45 15:56 14:44 (1.1)	08:45 15:56 14:44 (1.1)	14:32 (1.1)
5	09:05 16:07 16	14:45 (1.1) 15:01 (1.1) 17:08	08:22 17:08 18:11	07:15 18:11 20:16	05:53 21:19 22:14	04:46 22:22 21:35	04:47 22:22 21:35	05:38 21:35 20:18	06:40 20:18 18:58	07:40 16:42 15:56	08:46 15:56 14:46 (1.1)	08:46 15:56 14:46 (1.1)	14:32 (1.1)
6	09:04 16:09 15	14:46 (1.1) 15:01 (1.1) 17:11	08:20 17:11 18:13	07:13 18:13 20:18	05:50 21:21 22:15	04:45 22:22 21:33	04:48 22:22 21:33	05:40 21:33 20:16	06:42 20:16 18:55	07:42 16:39 15:55	08:48 15:55 14:47 (1.1)	08:48 15:55 14:47 (1.1)	14:32 (1.1)
7	09:04 16:10 14	14:47 (1.1) 15:01 (1.1) 17:13	08:18 17:13 18:15	07:10 18:15 20:21	05:47 21:23 22:16	04:44 22:21 21:31	04:50 22:21 21:31	05:41 21:31 20:13	06:44 20:13 18:52	07:44 16:37 15:54	08:49 15:54 14:47 (1.1)	08:49 15:54 14:47 (1.1)	14:31 (1.1)
8	09:03 16:12 12	14:48 (1.1) 15:00 (1.1) 17:15	08:16 17:15 18:17	07:08 18:17 20:23	05:45 21:25 22:17	04:43 22:20 21:28	04:51 22:20 21:28	05:43 21:28 20:10	06:46 20:10 18:50	07:47 16:35 15:54	08:51 15:54 14:48 (1.1)	08:51 15:54 14:48 (1.1)	14:32 (1.1)
9	09:02 16:13 11	14:49 (1.1) 15:00 (1.1) 17:17	08:14 17:17 18:19	07:05 18:19 20:25	05:42 21:27 22:18	04:42 22:19 21:26	04:52 22:19 21:26	05:45 21:26 20:08	06:48 20:08 18:47	07:49 16:33 15:53	08:52 15:53 14:49 (1.1)	08:52 15:53 14:49 (1.1)	14:31 (1.1)
10	09:02 16:15 8	14:51 (1.1) 14:59 (1.1) 17:20	08:11 17:20 18:22	07:02 18:22 20:27	05:39 21:29 22:19	04:42 22:18 21:24	04:53 22:18 21:24	05:47 21:24 20:05	06:50 20:05 18:44	07:51 16:31 15:53	08:54 15:53 14:50 (1.1)	08:54 15:53 14:50 (1.1)	14:32 (1.1)
11	09:01 16:17 1	14:55 (1.1) 14:56 (1.1) 17:22	08:09 17:22 18:24	07:00 18:24 20:29	05:37 21:31 22:20	04:41 22:17 21:21	04:55 22:17 21:21	05:49 21:21 20:02	06:52 20:02 18:42	07:53 16:29 15:52	08:55 15:52 14:50 (1.1)	08:55 15:52 14:50 (1.1)	14:32 (1.1)
12	09:00 16:19 13	14:56 (1.1) 17:24 18:26	08:07 17:24 18:26	07:00 18:26 20:31	05:34 21:33 22:21	04:41 22:16 21:19	04:56 22:16 21:19	05:51 21:19 20:00	06:54 20:00 18:39	07:55 16:27 15:52	08:56 15:52 14:52 (1.1)	08:56 15:52 14:52 (1.1)	14:33 (1.1)
13	08:59 16:20 14	14:57 (1.1) 17:27 18:28	08:05 17:27 18:28	06:54 18:28 20:33	05:32 21:35 22:22	04:40 22:15 21:17	04:57 22:15 21:17	05:53 21:17 19:57	06:56 19:57 18:37	07:57 16:25 15:52	08:57 15:52 14:52 (1.1)	08:57 15:52 14:52 (1.1)	14:33 (1.1)
14	08:58 16:22 15	14:58 (1.1) 17:29 18:30	08:02 17:29 18:30	06:52 18:30 20:35	05:29 21:37 22:22	04:40 22:14 21:14	04:59 22:14 21:14	05:55 21:14 19:54	06:58 19:54 18:34	07:59 16:24 15:52	08:58 15:52 14:52 (1.1)	08:58 15:52 14:52 (1.1)	14:33 (1.1)
15	08:57 16:24 16	14:59 (1.1) 17:31 18:32	08:00 17:31 18:32	06:49 18:32 20:37	05:28 21:39 22:23	04:39 22:12 21:12	05:00 22:12 21:12	05:58 21:12 19:52	07:00 19:52 18:31	08:01 16:22 15:52	08:59 15:52 14:53 (1.1)	08:59 15:52 14:53 (1.1)	14:33 (1.1)
16	08:55 16:26 17	14:59 (1.1) 17:33 18:34	08:00 17:33 18:34	06:48 18:34 20:39	05:27 21:41 22:24	04:39 22:11 21:10	05:02 22:11 21:10	06:00 21:10 19:49	07:02 19:49 18:29	08:03 16:20 15:52	09:00 15:52 14:53 (1.1)	09:00 15:52 14:53 (1.1)	14:33 (1.1)
17	08:54 16:28 18	14:59 (1.1) 17:36 18:37	08:00 17:36 18:37	06:46 18:37 20:41	05:25 21:43 22:24	04:39 22:09 21:07	05:03 22:09 21:07	06:02 21:07 19:46	07:04 19:46 18:26	08:05 16:18 15:52	09:01 15:52 14:54 (1.1)	09:01 15:52 14:54 (1.1)	14:34 (1.1)
18	08:53 16:30 19	14:59 (1.1) 17:38 18:39	08:00 17:38 18:39	06:44 18:39 20:44	05:23 21:45 22:25	04:39 22:08 21:05	05:05 22:08 21:05	06:04 21:05 19:43	07:06 19:43 18:24	08:07 16:17 15:52	09:02 15:52 14:55 (1.1)	09:02 15:52 14:55 (1.1)	14:35 (1.1)
19	08:52 16:32 20	14:59 (1.1) 17:40 18:41	08:00 17:40 18:41	06:42 18:41 20:46	05:21 21:47 22:25	04:39 22:07 21:02	05:06 22:07 21:02	06:06 21:02 19:41	07:08 19:41 18:21	08:10 16:15 15:52	09:03 15:52 14:54 (1.1)	09:03 15:52 14:54 (1.1)	14:34 (1.1)
20	08:50 16:34 21	14:59 (1.1) 17:42 18:43	08:00 17:42 18:43	06:40 18:43 20:48	05:19 21:48 22:26	04:39 22:05 21:00	05:08 22:05 21:00	06:08 21:00 19:38	07:10 19:38 18:19	08:12 16:13 15:52	09:04 15:52 14:55 (1.1)	09:04 15:52 14:55 (1.1)	14:35 (1.1)
21	08:49 16:36 22	14:59 (1.1) 17:44 18:45	08:00 17:44 18:45	06:38 18:45 20:50	05:17 21:50 22:26	04:39 22:03 21:05	05:10 22:03 21:05	06:10 21:05 19:35	07:12 19:35 18:16	08:14 16:12 15:53	09:04 15:53 14:56 (1.1)	09:04 15:53 14:56 (1.1)	14:36 (1.1)
22	08:47 16:38 23	14:59 (1.1) 17:47 18:47	08:00 17:47 18:47	06:36 18:47 20:52	05:15 21:52 22:26	04:39 22:02 21:05	05:11 22:02 21:05	06:12 21:05 19:33	07:14 19:33 18:14	08:16 16:10 15:53	09:05 15:53 14:56 (1.1)	09:05 15:53 14:56 (1.1)	14:36 (1.1)
23	08:46 16:40 24	14:59 (1.1) 17:49 18:49	08:00 17:49 18:49	06:34 18:49 20:54	05:13 21:54 22:26	04:39 22:00 21:05	05:13 22:00 21:05	06:14 21:05 19:30	07:16 19:30 18:11	08:18 16:09 15:54	09:05 15:54 14:57 (1.1)	09:05 15:54 14:57 (1.1)	14:37 (1.1)
24	08:44 16:42 25	14:59 (1.1) 17:51 18:51	08:00 17:51 18:51	06:32 18:51 20:56	05:11 21:56 22:26	04:40 22:26 21:58	05:15 22:26 21:58	06:16 21:58 20:50	07:18 20:50 19:27	08:20 16:07 15:54	09:06 15:54 14:57 (1.1)	09:06 15:54 14:57 (1.1)	14:37 (1.1)
25	08:43 16:44 26	14:59 (1.1) 17:53 18:53	08:00 17:53 18:53	06:30 18:53 20:58	05:09 21:57 22:26	04:40 22:26 21:57	05:17 22:26 21:57	06:18 21:57 20:47	07:20 20:47 19:24	08:22 16:06 15:55	09:06 15:55 14:58 (1.1)	09:06 15:55 14:58 (1.1)	14:37 (1.1)
26	08:41 16:46 27	14:59 (1.1) 17:55 18:55	08:00 17:55 18:55	06:28 18:55 21:00	05:07 21:59 22:26	04:41 22:26 21:55	05:19 22:26 21:55	06:20 21:55 20:45	07:22 20:45 19:22	08:24 16:05 15:56	09:06 15:56 14:58 (1.1)	09:06 15:56 14:58 (1.1)	14:38 (1.1)
27	08:39 16:48 28	14:59 (1.1) 17:58 18:58	08:00 17:58 18:58	06:26 18:58 21:02	05:05 22:01 22:26	04:41 22:26 21:53	05:20 22:26 21:53	06:22 21:53 20:42	07:24 20:42 19:19	08:26 16:03 15:57	09:06 15:57 14:58 (1.1)	09:06 15:57 14:58 (1.1)	14:38 (1.1)
28	08:37 16:51 29	14:59 (1.1) 17:58 18:58	08:00 17:58 18:58	06:24 18:58 21:00	05:03 22:02 22:26	04:42 22:26 21:51	05:22 22:26 21:51	06:24 21:51 20:39	07:26 20:39 19:16	08:28 16:02 15:58	09:07 15:58 14:59 (1.1)	09:07 15:58 14:59 (1.1)	14:39 (1.1)
29	08:36 16:53 30	14:59 (1.1) 17:58 18:58	08:00 17:58 18:58	06:22 18:58 21:00	05:01 22:02 22:26	04:42 22:26 21:51	05:24 22:26 21:51	06:26 21:51 20:39	07:28 20:39 19:16	08:30 16:01 15:59	09:07 15:59 14:59 (1.1)	09:07 15:59 14:59 (1.1)	14:40 (1.1)
30	08:34 16:55 31	14:59 (1.1) 17:58 18:58	08:00 17:58 18:58	06:20 18:58 21:00	05:00 22:02 22:26	04:42 22:26 21:51	05:26 22:26 21:51	06:28 21:51 20:39	07:30 20:39 19:11	08:32 16:00 15:59	09:07 15:59 14:59 (1.1)	09:07 15:59 14:59 (1.1)	14:40 (1.1)
31	08:32 16:57 Potential sun hours	14:59 (1.1) 17:58 235	08:00 17:58 266	06:18 18:58 366	05:00 22:02 426	04:42 22:26 508	05:28 22:26 530	06:30 21:51 470	07:32 20:32 385	08:34 16:00 323	09:07 15:59 247	09:07 15:59 215	15:00 (1.1)
Total, worst case		147											540
Sun reduction		0.18											0.10
Oper. time red.		0.99											0.99
Wind dir. red.		0.66											0.66
Total reduction		0.12											0.07
Total, real		17											36

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Parka iela 3, Evarž i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (75)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:14	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:37	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:48	22:26	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Parka iela 5, Evarž i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (77)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December	
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40	
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59	
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41	
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58	
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43	
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57	
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45	
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56	
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:46	
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:42	15:56	
6	09:04	08:20	07:13	06:50	05:35	04:45	04:49	05:40	06:42	07:42	07:49	08:48	
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55	
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:44	07:51	08:49	
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54	
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:47	07:53	08:51	
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54	
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52	
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53	
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54	
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53	
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:49	06:52	07:53	08:00	08:55	
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52	
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56	
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52	
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57	
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52	
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58	
	16:22	17:29	18:30	20:35	21:37	22:22	22:14	21:14	19:54	18:34	16:24	15:52	
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:58	07:00	08:01	08:08	08:59	
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:31	16:22	15:52	
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00	
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52	
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:12	09:01	
	16:28	17:36	18:37	20:41	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52	
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02	
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52	
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03	
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52	
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04	
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:52	
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04	14:19 (1.1.)
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53	2 14:21 (1.1.)
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05	14:19 (1.1.)
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53	2 14:21 (1.1.)
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05	
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54	
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06	
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54	
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06	
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55	
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06	
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56	
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:06	
	16:48	17:58	18:58	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57	
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07	
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:39	19:16	17:00	16:02	15:58	
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07	
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59	
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07	
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00	
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07	
	16:57		20:06		22:07		21:45	20:32		16:53		16:01	
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215	
Total, worst case													4
Sun reduction													0.10
Oper. time red.													0.99
Wind dir. red.													0.66
Total reduction													0.07
Total, real													0

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Parka iela 7, Evarž i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (76)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:02 9	14:32 (1.1) 16:59 18:02	08:30 07:26 18:02	07:03 20:08 21:11	05:47 21:11 22:08	04:50 22:25 21:43	04:44 22:25 20:29	05:30 22:25 19:08	06:32 22:25 16:50	07:32 20:29 15:59	07:38 16:50 15:59	
2	09:06 16:03 8	14:34 (1.1) 17:02 18:04	08:28 07:23 18:04	07:01 20:10 21:13	05:44 21:13 22:10	04:49 22:10 21:41	04:45 22:24 20:26	05:32 21:41 19:06	06:34 20:26 16:48	07:34 19:06 15:58	07:40 16:48 15:58	
3	09:06 16:05 5	14:35 (1.1) 17:04 18:06	08:26 07:21 18:06	06:58 20:12 21:15	05:42 21:15 22:11	04:48 22:11 21:39	04:46 22:24 20:24	05:34 21:39 19:03	06:36 20:24 16:46	07:36 19:03 15:57	07:42 16:46 15:57	
4	09:05 16:06 5	14:40 (1.1) 17:06 18:09	08:24 07:18 18:09	06:55 20:14 21:17	05:40 21:17 22:12	04:46 22:12 21:37	04:46 22:23 20:21	05:36 21:37 19:00	06:38 20:21 16:44	07:38 19:00 15:56	07:44 16:44 15:56	
5	09:05 16:07 5	14:42 (1.1) 17:08 18:11	08:22 07:15 18:11	06:53 20:16 21:19	05:38 21:19 22:14	04:46 22:14 21:35	04:47 22:22 20:18	05:38 21:35 18:58	06:40 20:18 16:42	07:40 18:58 15:56	07:47 16:42 15:56	
6	09:04 16:09 5	14:42 (1.1) 17:08 18:13	08:20 07:13 18:13	06:50 20:16 21:21	05:35 21:19 22:15	04:45 22:15 21:33	04:48 22:22 20:16	05:40 21:33 18:55	06:42 20:16 16:39	07:42 18:55 15:55	07:49 16:39 15:55	
7	09:04 16:10 5	14:42 (1.1) 17:08 18:15	08:18 07:10 18:15	06:47 20:21 21:23	05:33 21:23 22:16	04:44 22:16 21:31	04:50 22:21 20:13	05:42 21:31 18:52	06:44 20:13 16:37	07:44 18:52 15:54	07:51 16:37 15:54	
8	09:03 16:12 5	14:42 (1.1) 17:08 18:17	08:16 07:08 18:17	06:45 20:23 21:25	05:31 21:25 22:17	04:43 22:17 21:28	04:51 22:20 20:10	05:43 21:28 18:50	06:46 20:10 16:35	07:47 18:50 15:53	07:53 16:35 15:53	
9	09:02 16:13 5	14:42 (1.1) 17:08 18:19	08:14 07:05 18:19	06:42 20:25 21:27	05:29 21:27 22:18	04:42 22:18 21:26	04:52 22:19 20:08	05:45 21:26 18:47	06:48 20:08 16:33	07:49 18:47 15:53	07:55 16:33 15:53	14:23 (1.1)
10	09:02 16:15 5	14:42 (1.1) 17:08 18:22	08:11 07:02 18:22	06:39 20:27 21:29	05:27 21:29 22:19	04:42 22:19 21:24	04:53 22:18 20:05	05:47 21:24 18:44	06:50 20:05 16:31	07:51 18:44 15:53	07:57 16:31 15:53	14:23 (1.1)
11	09:01 16:17 5	14:42 (1.1) 17:08 18:24	08:09 07:00 18:24	06:37 20:29 21:31	05:25 21:31 22:20	04:41 22:20 21:27	04:55 22:17 20:02	05:49 21:27 18:42	06:52 20:02 16:29	07:53 18:42 15:52	08:00 16:29 15:52	14:22 (1.1)
12	09:00 16:19 5	14:42 (1.1) 17:08 18:26	08:07 06:57 18:26	06:34 20:31 21:33	05:23 21:33 22:21	04:41 22:21 21:19	04:56 22:16 20:00	05:51 21:19 18:39	06:54 20:00 16:27	07:55 18:39 15:52	08:02 16:27 15:52	14:22 (1.1)
13	08:59 16:20 5	14:42 (1.1) 17:08 18:28	08:05 06:54 18:28	06:32 20:31 21:35	05:21 21:35 22:22	04:40 22:22 21:17	04:57 22:15 20:00	05:53 21:17 18:37	06:56 20:00 16:25	07:57 18:37 15:52	08:04 16:25 15:52	14:22 (1.1)
14	08:58 16:22 5	14:42 (1.1) 17:08 18:30	08:02 06:52 18:30	06:29 20:35 21:37	05:19 21:37 22:22	04:40 22:22 21:14	04:59 22:14 20:00	05:55 21:14 18:34	06:58 20:00 16:24	07:59 18:34 15:52	08:06 16:24 15:52	14:22 (1.1)
15	08:57 16:24 5	14:42 (1.1) 17:08 18:32	08:00 06:49 18:32	06:26 20:37 21:39	05:17 21:39 22:23	04:39 22:23 21:12	05:00 22:12 19:52	05:58 21:12 18:31	07:00 19:52 16:22	08:01 18:31 15:52	08:08 16:22 15:52	14:22 (1.1)
16	08:55 16:26 5	14:42 (1.1) 17:08 18:34	07:58 06:46 18:34	06:24 20:39 21:41	05:15 21:41 22:24	04:39 22:24 21:10	05:02 22:11 20:00	06:00 21:10 18:29	07:02 20:00 16:20	08:03 18:29 15:52	08:10 16:20 15:52	14:22 (1.1)
17	08:54 16:28 5	14:42 (1.1) 17:08 18:36	07:55 06:44 18:36	06:21 20:41 21:43	05:13 21:43 22:24	04:39 22:24 21:07	05:03 22:10 20:00	06:02 21:07 19:46	07:04 20:00 16:18	08:05 18:26 15:52	08:12 16:18 15:52	14:22 (1.1)
18	08:53 16:30 5	14:42 (1.1) 17:08 18:38	07:53 06:41 18:38	06:19 20:44 21:45	05:11 21:45 22:25	04:39 22:25 21:05	05:05 22:08 20:00	06:04 21:05 19:43	07:06 20:00 16:17	08:08 18:24 15:52	08:15 16:17 15:52	14:23 (1.1)
19	08:52 16:32 5	14:42 (1.1) 17:08 18:40	07:51 06:38 18:40	06:16 20:46 21:47	05:09 21:47 22:25	04:39 22:25 21:02	05:06 22:07 20:00	06:06 21:02 19:41	07:08 20:00 16:15	08:10 18:21 15:52	08:17 16:15 15:52	14:23 (1.1)
20	08:50 16:34 5	14:42 (1.1) 17:08 18:42	07:48 06:36 18:42	06:14 20:48 21:49	05:07 21:49 22:26	04:39 22:26 21:00	05:08 22:05 20:00	06:08 21:00 19:38	07:10 20:00 16:13	08:12 18:19 15:52	08:19 16:13 15:52	14:23 (1.1)
21	08:49 16:36 5	14:42 (1.1) 17:08 18:44	07:46 06:33 18:44	06:11 20:50 21:50	05:06 21:50 22:26	04:39 22:26 21:00	05:10 22:03 20:00	06:10 20:57 19:35	07:12 20:00 16:12	08:14 18:16 15:53	08:21 16:12 15:53	14:24 (1.1)
22	08:47 16:38 5	14:42 (1.1) 17:08 18:46	07:43 06:30 18:46	06:09 20:52 21:52	05:04 21:52 22:26	04:39 22:26 21:00	05:11 22:02 20:00	06:12 21:00 19:33	07:14 20:00 16:10	08:16 18:14 15:53	08:23 16:10 15:53	14:24 (1.1)
23	08:46 16:40 5	14:42 (1.1) 17:08 18:48	07:41 06:28 18:48	06:06 20:54 21:54	05:02 21:54 22:26	04:39 22:26 21:00	05:13 22:00 20:00	06:14 21:00 19:30	07:16 20:00 16:09	08:18 18:11 15:54	08:25 16:09 15:54	14:25 (1.1)
24	08:44 16:42 5	14:42 (1.1) 17:08 18:50	07:38 06:25 18:50	06:04 20:56 21:56	05:01 21:56 22:26	04:40 22:26 21:00	05:15 22:00 20:00	06:16 21:00 19:27	07:18 20:00 16:07	08:20 18:09 15:54	08:27 16:07 15:54	14:25 (1.1)
25	08:43 16:44 5	14:42 (1.1) 17:08 18:52	07:36 06:22 18:52	06:01 20:58 21:57	04:59 21:57 22:26	04:40 22:26 21:00	05:17 22:00 20:00	06:18 21:00 19:24	07:20 20:00 16:06	08:22 17:07 15:55	08:29 16:06 15:55	14:26 (1.1)
26	08:41 16:46 5	14:42 (1.1) 17:08 18:54	07:33 06:19 18:54	05:59 21:00 21:59	04:58 21:59 22:26	04:41 22:26 21:00	05:19 22:00 20:00	06:20 21:00 19:22	07:22 20:00 16:05	08:31 17:04 15:56	09:06 16:05 15:56	14:26 (1.1)
27	08:39 16:48 5	14:42 (1.1) 17:08 18:56	07:31 06:17 18:56	05:56 21:02 22:01	04:56 22:01 22:26	04:41 22:26 21:00	05:20 21:53 20:00	06:22 21:00 19:19	07:24 20:00 16:03	08:33 17:02 15:57	09:06 16:03 15:57	14:27 (1.1)
28	08:37 16:51 5	14:42 (1.1) 17:08 18:58	07:28 06:14 18:58	05:54 21:04 22:02	04:55 22:02 22:26	04:42 22:26 21:00	05:22 21:51 20:00	06:24 21:00 19:16	07:26 20:00 16:02	08:34 17:00 15:58	09:07 16:02 15:58	14:28 (1.1)
29	08:36 16:53 5	14:42 (1.1) 17:08 19:00	07:11 05:51 20:02	04:53 21:07 22:04	04:53 22:04 22:26	04:42 22:26 21:00	05:24 21:49 20:00	06:26 21:37 19:14	07:28 20:00 16:01	08:36 17:00 15:58	09:08 16:01 15:58	14:29 (1.1)
30	08:34 16:55 5	14:42 (1.1) 17:08 19:02	07:09 05:49 20:04	04:52 21:09 22:05	04:52 22:05 22:25	04:43 22:25 21:00	05:26 21:47 20:00	06:28 21:37 19:11	07:30 20:00 16:00	08:38 17:00 15:59	09:09 16:00 15:59	14:30 (1.1)
31	08:32 16:57 5	14:42 (1.1) 17:08 19:04	07:06 05:46 20:06	04:51 21:07 22:07	04:51 22:07 22:25	04:44 22:25 21:00	05:28 21:45 20:00	06:30 21:37 19:11	07:32 20:00 16:00	08:40 17:00 15:59	09:11 16:00 15:59	14:31 (1.1)
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												298
Sun reduction	0.18											0.10
Oper. time red.	0.99											0.99
Wind dir. red.	0.66											0.66
Total reduction	0.12											0.07
Total, real	3											20

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Paulas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (90)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:20	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:37	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:41	15:55
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:22	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:48	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:31	05:20	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:18	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:23	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:50	06:38	06:16	05:09	04:39	05:06	06:05	07:08	08:10	08:16	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:13	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:25	08:30	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:57
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:06	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:07		21:45	20:32		16:52		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Pekš nas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (13)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December	
1	09:06 16:03	08:30 17:00	07:26 18:02	07:04 20:08	05:47 21:11	04:50 22:08	05:28 (2.1) 22:25	04:44 22:25	05:31 (2.1) 21:43	05:30 20:29	06:32 19:09	07:32 16:51	08:40 16:00
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	05:45 21:13	04:49 22:09	05:27 (2.1) 22:24	04:45 22:24	05:32 (2.1) 21:41	05:32 20:26	06:34 19:06	07:34 16:48	08:41 15:59
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:43 21:15	04:48 22:11	05:27 (2.1) 22:23	04:46 22:23	05:32 (2.1) 21:39	05:34 20:24	06:36 19:03	07:36 16:46	08:43 15:58
4	09:05 16:07	08:24 17:07	07:18 18:09	06:56 20:14	05:40 21:17	04:47 22:12	05:27 (2.1) 22:23	04:47 22:23	05:33 (2.1) 21:37	05:36 20:21	06:38 19:01	07:38 16:44	08:45 15:57
5	09:05 16:08	08:22 17:09	07:16 18:11	06:53 20:16	05:38 21:19	04:46 22:13	05:26 (2.1) 22:22	04:48 22:22	05:32 (2.1) 21:35	05:38 20:19	06:40 18:58	07:40 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:19	05:36 21:21	04:45 22:15	05:27 (2.1) 22:21	04:49 22:21	05:32 (2.1) 21:33	05:40 20:16	06:42 18:55	07:43 16:40	08:48 15:55
7	09:04 16:11	08:18 17:13	07:10 18:15	06:48 20:21	05:34 21:23	04:44 22:16	05:27 (2.1) 22:21	04:50 22:21	05:33 (2.1) 21:30	05:42 20:13	06:44 18:53	07:45 16:51	08:49 15:55
8	09:03 16:12	08:16 17:16	07:08 18:18	06:45 20:23	05:31 21:25	04:44 22:17	05:26 (2.1) 22:20	04:51 22:20	05:34 (2.1) 21:28	05:44 20:11	06:46 18:50	07:47 16:36	08:51 15:54
9	09:02 16:14	08:14 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	05:27 (2.1) 22:19	04:53 22:19	05:34 (2.1) 21:26	05:46 20:08	06:48 18:47	07:49 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	05:27 (2.1) 22:18	04:54 22:18	05:35 (2.1) 21:24	05:48 20:05	06:50 18:45	07:51 16:32	08:53 15:53
11	09:01 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:20	05:27 (2.1) 22:17	04:55 22:17	05:35 (2.1) 21:21	05:50 20:02	06:52 18:42	07:53 16:30	08:55 15:53
12	09:00 16:19	08:07 17:25	06:57 18:26	06:35 20:31	05:23 21:33	04:41 22:21	05:28 (2.1) 22:15	04:57 22:15	05:35 (2.1) 21:19	05:52 20:00	06:54 18:40	07:55 16:28	08:56 15:53
13	08:59 16:21	08:05 17:27	06:55 18:28	06:32 20:33	05:21 21:35	04:41 22:21	05:27 (2.1) 22:15	04:58 22:15	05:37 (2.1) 21:17	05:54 19:57	06:56 18:37	07:57 16:26	08:57 15:53
14	08:58 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	05:27 (2.1) 22:13	04:59 22:13	05:37 (2.1) 21:14	05:56 19:54	06:58 18:59	07:59 16:24	08:58 15:52
15	08:57 16:25	08:00 17:31	06:49 18:33	06:27 20:37	05:17 21:39	04:40 22:23	05:28 (2.1) 22:12	05:01 22:12	05:37 (2.1) 21:12	05:58 19:52	07:00 18:32	08:01 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:47 18:35	06:24 20:39	05:15 21:41	04:40 22:23	05:28 (2.1) 22:11	05:02 22:11	05:39 (2.1) 21:10	06:00 19:49	07:02 18:29	08:03 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:22 20:41	05:13 21:43	04:40 22:24	05:28 (2.1) 22:09	05:04 22:09	05:40 (2.1) 21:07	06:02 19:46	07:04 18:27	08:05 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:44	05:11 21:45	04:40 22:24	05:29 (2.1) 22:08	05:05 22:08	05:41 (2.1) 21:05	06:04 19:44	07:06 18:24	08:08 16:17	09:02 15:53
19	08:52 16:32	07:51 17:40	06:39 18:41	06:16 20:46	05:10 21:47	04:40 22:25	05:29 (2.1) 22:06	05:07 22:06	05:43 (2.1) 21:02	06:06 19:41	07:08 18:22	08:10 16:15	09:03 15:53
20	08:50 16:34	07:48 17:43	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:29 (2.1) 22:05	05:09 22:05	05:44 (2.1) 21:00	06:08 19:38	07:10 18:19	08:12 16:14	09:03 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:26	05:29 (2.1) 22:03	05:10 22:03	05:51 (2.1) 21:00	06:10 19:35	07:12 18:17	08:14 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:05 21:52	04:40 22:26	05:29 (2.1) 22:02	05:12 22:02	05:52 (2.1) 20:55	06:12 19:33	07:14 18:14	08:16 16:11	09:05 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	04:40 22:26	05:30 (2.1) 22:00	05:14 22:00	05:53 (2.1) 20:56	06:14 19:30	07:16 18:12	08:18 16:09	09:05 15:54
24	08:44 16:43	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:30 (2.1) 21:58	05:16 21:58	05:54 (2.1) 20:50	06:16 19:27	07:18 18:09	08:20 16:08	09:05 15:55
25	08:43 16:45	07:36 17:54	06:22 18:53	06:02 20:58	05:00 21:57	04:41 22:26	05:29 (2.1) 21:57	05:17 21:57	05:55 (2.1) 20:47	06:18 19:25	07:20 18:07	08:23 16:07	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:56	05:59 21:00	04:58 21:59	04:41 22:26	05:31 (2.1) 21:55	05:19 21:55	05:57 (2.1) 20:45	06:20 19:22	07:22 18:05	08:25 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:26	05:30 (2.1) 21:53	05:21 21:53	05:58 (2.1) 20:42	06:22 19:19	07:24 18:02	08:27 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:26	05:29 (2.1) 21:51	05:23 21:51	05:31 (2.1) 20:40	06:24 19:17	07:26 18:00	08:34 16:03	09:06 15:58
29	08:36 16:53	07:12 20:02	07:12 21:07	05:52 22:04	04:54 22:04	04:43 22:25	05:29 (2.1) 21:49	05:25 21:49	05:31 (2.1) 20:37	06:26 19:14	07:28 18:00	08:36 16:02	09:06 15:59
30	08:34 16:56	07:09 20:04	07:09 21:09	05:50 22:05	04:53 22:05	04:44 22:25	05:28 (2.1) 21:47	05:26 21:47	05:31 (2.1) 20:34	06:28 19:11	07:30 18:00	08:38 16:01	09:06 16:00
31	08:32 16:58	07:06 20:06	07:06 21:06	05:50 22:07	04:52 22:07	04:42 22:25	05:28 (2.1) 21:45	05:24 21:45	05:31 (2.1) 20:32	06:30 19:08	07:36 18:00	08:40 16:01	09:06 16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216	
Total, worst case					136	800	430						
Sun reduction					0.59	0.62	0.57						
Oper. time red.					0.99	0.99	0.99						
Wind dir. red.					0.67	0.67	0.67						
Total reduction					0.39	0.41	0.38						
Total, real					53	328	163						

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Plostnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (24)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December		
1	09:06 16:02	08:30 17:00	07:26 18:02	07:03 18:08	05:47 21:11	20:18 (2.1) 21:11	04:50 22:08	04:44 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 15:59	
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 18:10	05:45 21:13	20:18 (2.1) 20:39 (2.1)	04:49 22:09	04:45 22:24	05:32 21:41	20:37 (2.1) 20:40 (2.1)	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:58
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 18:12	05:42 21:15	20:18 (2.1) 20:39 (2.1)	04:48 22:11	04:46 22:23	05:34 21:39	20:32 (2.1) 20:42 (2.1)	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:06	08:24 17:06	07:18 18:09	06:55 18:14	05:40 21:17	20:17 (2.1) 20:37 (2.1)	04:47 22:12	04:47 22:23	05:36 21:37	20:31 (2.1) 20:44 (2.1)	06:38 20:21	07:38 19:00	07:44 16:44	08:44 15:57
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 18:16	05:38 21:19	20:18 (2.1) 20:37 (2.1)	04:46 22:13	04:48 22:22	05:38 21:35	20:30 (2.1) 20:45 (2.1)	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 18:18	05:36 21:21	20:18 (2.1) 20:36 (2.1)	04:45 22:14	04:49 22:21	05:40 21:32	20:29 (2.1) 20:46 (2.1)	06:42 20:16	07:42 18:55	07:49 16:40	08:48 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:47 18:20	05:33 21:23	20:19 (2.1) 20:35 (2.1)	04:44 22:16	04:50 22:20	05:42 21:30	20:28 (2.1) 20:47 (2.1)	06:44 20:13	07:44 18:52	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:15	07:08 18:17	06:45 18:22	05:31 21:25	20:20 (2.1) 20:34 (2.1)	04:43 22:17	04:51 22:20	05:44 21:28	20:27 (2.1) 20:46 (2.1)	06:46 20:10	07:46 18:50	07:53 16:35	08:50 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 18:25	05:29 21:27	20:21 (2.1) 20:33 (2.1)	04:43 22:18	04:52 22:19	05:46 21:26	20:27 (2.1) 20:47 (2.1)	06:48 20:08	07:49 18:47	07:55 16:33	08:52 15:54
10	09:01 16:15	08:11 17:20	07:02 18:22	06:40 18:27	05:27 21:29	20:23 (2.1) 20:31 (2.1)	04:42 22:19	04:54 22:18	05:48 21:24	20:26 (2.1) 20:47 (2.1)	06:50 20:05	07:51 18:45	07:57 16:31	08:53 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 18:29	05:25 21:31	20:31 (2.1)	04:42 22:20	04:55 22:17	05:50 21:21	20:26 (2.1) 20:47 (2.1)	06:52 20:02	07:53 18:42	07:59 16:29	08:54 15:53
12	08:59 16:19	08:07 17:24	06:57 18:26	06:34 18:31	05:23 21:33	20:32 (2.1)	04:41 22:20	04:56 22:16	05:52 21:19	20:27 (2.1) 20:46 (2.1)	06:54 20:00	07:55 18:39	08:02 16:28	08:56 15:53
13	08:58 16:21	08:04 17:27	06:54 18:28	06:32 18:33	05:21 21:35	20:33 (2.1)	04:41 22:21	04:58 22:14	05:54 21:17	20:27 (2.1) 20:44 (2.1)	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:52
14	08:57 16:22	08:02 17:29	06:52 18:30	06:29 18:35	05:19 21:37	20:34 (2.1)	04:40 22:22	04:59 22:13	05:56 21:14	20:27 (2.1) 20:42 (2.1)	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:24	08:00 17:31	06:49 18:32	06:27 18:37	05:17 21:39	20:35 (2.1)	04:40 22:23	05:01 22:12	05:58 21:12	20:27 (2.1) 20:39 (2.1)	07:00 19:51	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:33	06:46 18:34	06:24 18:39	05:15 21:41	20:36 (2.1)	04:40 22:23	05:02 22:11	06:00 21:09	20:28 (2.1) 20:37 (2.1)	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 18:41	05:13 21:43	20:37 (2.1)	04:40 22:24	05:04 22:09	06:02 21:07	20:29 (2.1) 20:35 (2.1)	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 18:43	05:11 21:44	20:38 (2.1)	04:39 22:24	05:05 22:08	06:04 21:05	20:31 (2.1) 20:33 (2.1)	07:06 19:43	08:07 18:24	08:14 16:17	09:02 15:52
19	08:51 16:32	07:50 17:40	06:38 18:41	06:16 18:45	05:09 21:46	20:39 (2.1)	04:39 22:25	05:07 22:06	06:06 21:02	20:33 (2.1)	07:08 19:41	08:10 18:21	08:16 16:15	09:02 15:53
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 18:48	05:08 21:48	20:40 (2.1)	04:39 22:25	05:08 22:05	06:08 21:00	20:46 (2.1)	07:10 19:38	08:12 18:19	08:18 16:14	09:03 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 18:50	05:06 21:50	20:41 (2.1)	04:40 22:25	05:10 22:03	06:10 20:57	20:47 (2.1)	07:12 19:35	08:14 18:17	08:20 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 18:52	05:04 21:52	20:42 (2.1)	04:40 22:26	05:12 22:01	06:12 20:55	20:48 (2.1)	07:14 19:33	08:16 18:14	08:22 16:11	09:04 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 18:54	05:03 21:54	20:43 (2.1)	04:40 22:26	05:14 22:00	06:14 20:52	20:49 (2.1)	07:16 19:30	08:18 18:12	08:24 16:09	09:05 15:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 18:56	05:01 21:55	20:44 (2.1)	04:40 22:26	05:15 21:58	06:16 20:50	20:50 (2.1)	07:18 19:27	08:20 18:09	08:26 16:08	09:05 15:55
25	08:42 16:44	07:36 17:53	06:22 18:53	06:01 19:00	05:00 21:57	20:24 (2.1) 20:27 (2.1)	04:41 22:26	05:17 21:56	06:18 20:47	20:51 (2.1)	07:20 19:24	08:22 17:07	08:28 16:06	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 19:07	04:58 21:59	20:22 (2.1) 20:29 (2.1)	04:41 22:26	05:19 21:55	06:20 20:44	20:52 (2.1)	07:22 19:22	08:25 17:04	08:30 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:57	05:56 19:14	04:57 22:00	20:21 (2.1) 20:31 (2.1)	04:42 22:26	05:21 21:53	06:22 20:42	20:53 (2.1)	07:24 19:19	08:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 19:12	04:55 22:02	20:19 (2.1) 20:32 (2.1)	04:42 22:25	05:23 21:51	06:24 20:39	20:54 (2.1)	07:26 19:16	08:29 17:00	08:34 16:03	09:06 15:58
29	08:35 16:53	07:11 18:02	07:11 19:00	05:52 19:14	04:54 22:03	20:19 (2.1) 20:34 (2.1)	04:43 22:25	05:24 21:49	06:26 20:37	20:55 (2.1)	07:28 19:14	08:31 16:57	08:36 16:01	09:06 15:59
30	08:34 16:55	07:09 18:04	07:09 19:00	05:49 19:16	04:53 22:05	20:18 (2.1) 20:36 (2.1)	04:43 22:25	05:26 21:47	06:28 20:34	20:56 (2.1)	07:30 19:11	08:33 16:55	08:38 16:00	09:06 16:00
31	08:32 16:58	07:06 18:06	07:06 19:06	05:47 19:18	04:51 22:06	20:17 (2.1) 20:32 (2.1)	04:44 22:25	05:28 21:45	06:30 20:32	20:57 (2.1)	07:32 16:53	08:35 16:01	08:40 16:01	09:06 16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216		
Total, worst case				66	169			238						
Sun reduction				0.57	0.59			0.52						
Oper. time red.				0.99	0.99			0.99						
Wind dir. red.				0.63	0.63			0.63						
Total reduction				0.36	0.36			0.32						
Total, real				24	62			77						

Table layout: For each day in each month the following 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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ploci - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (96)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:02	08:30 16:59	15:51 (1.5) 18:02	07:26 20:08	05:47 21:11	04:50 22:08	04:44 22:25	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:50	08:40 15:59
2	09:06 16:03	08:28 17:02	15:52 (1.5) 18:04	07:01 20:10	05:44 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:58
3	09:06 16:05	08:26 17:04	15:53 (1.5) 18:06	06:58 20:12	05:42 21:15	04:48 22:11	04:46 22:24	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:57
4	09:05 16:06	08:24 17:06	15:57 (1.5) 18:09	06:55 20:14	05:40 21:17	04:47 22:12	04:46 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:45 15:56
5	09:05 16:07	08:22 17:08	15:58 (1.5) 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:47 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:46 16:41	08:46 15:56
6	09:04 16:09	08:20 17:11	15:59 (1.5) 18:13	06:50 20:18	05:35 21:21	04:45 22:15	04:49 22:21	05:39 21:33	06:42 20:16	07:42 18:55	07:49 16:39	08:48 15:55
7	09:04 16:10	08:18 17:13	15:59 (1.5) 18:15	06:47 20:20	05:33 21:23	04:44 22:16	04:50 22:21	05:41 21:30	06:44 20:13	07:44 18:52	07:51 16:37	08:49 15:54
8	09:03 16:12	08:16 17:15	15:59 (1.5) 18:17	06:45 20:22	05:31 21:25	04:43 22:17	04:51 22:20	05:43 21:28	06:46 20:10	07:46 18:50	07:53 16:35	08:51 15:54
9	09:02 16:13	08:13 17:17	15:59 (1.5) 18:19	06:42 20:25	05:29 21:27	04:42 22:18	04:52 22:19	05:45 21:26	06:48 20:08	07:48 18:47	07:55 16:33	08:52 15:53
10	09:01 16:15	08:11 17:20	15:59 (1.5) 18:22	06:39 20:27	05:27 21:29	04:42 22:19	04:53 22:18	05:47 21:24	06:50 20:05	07:51 18:44	07:57 16:31	08:53 15:53
11	09:01 16:17	08:09 17:22	15:59 (1.5) 18:24	06:37 20:29	05:25 21:31	04:41 22:20	04:55 22:17	05:49 21:21	06:52 20:02	07:53 18:42	07:59 16:29	08:55 15:52
12	09:00 16:19	08:07 17:24	15:59 (1.5) 18:26	06:34 20:31	05:23 21:33	04:41 22:21	04:56 22:16	05:51 21:19	06:54 20:00	07:55 18:39	08:02 16:27	08:56 15:52
13	08:59 16:20	08:05 17:26	15:59 (1.5) 18:28	06:32 20:33	05:21 21:35	04:40 22:21	04:57 22:15	05:53 21:17	06:56 19:57	07:57 18:37	08:04 16:25	08:57 15:52
14	08:58 16:22	08:02 17:29	15:59 (1.5) 18:30	06:29 20:35	05:19 21:37	04:40 22:22	04:59 22:13	05:55 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:24	08:00 17:31	15:59 (1.5) 18:32	06:26 20:37	05:17 21:39	04:39 22:23	05:00 22:12	05:57 21:12	07:00 19:51	08:01 18:31	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:33	15:59 (1.5) 18:34	06:24 20:39	05:15 21:41	04:39 22:24	05:02 22:11	05:59 21:09	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:35	15:59 (1.5) 18:36	06:21 20:41	05:13 21:43	04:39 22:24	05:03 22:09	06:01 21:07	07:04 19:46	08:05 18:26	08:12 16:18	09:01 15:52
18	08:53 16:30	15:48 (1.5) 17:38	18:37 18:39	06:19 20:43	05:11 21:45	04:39 22:25	05:05 22:08	06:04 21:05	07:06 19:43	08:07 18:24	08:14 16:17	09:02 15:52
19	08:51 16:32	15:48 (1.5) 17:40	18:37 18:41	06:16 20:45	05:09 21:46	04:39 22:25	05:06 22:06	06:06 21:02	07:08 19:41	08:09 18:21	08:16 16:15	09:03 15:52
20	08:50 16:34	15:47 (1.5) 17:42	18:37 18:43	06:14 20:48	05:07 21:48	04:39 22:25	05:08 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:19 16:13	09:03 15:52
21	08:49 16:36	15:46 (1.5) 17:44	18:37 18:43	06:11 20:50	05:06 21:50	04:39 22:26	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:16	08:21 16:12	09:04 15:53
22	08:47 16:38	15:47 (1.5) 17:47	18:37 18:47	06:09 20:52	05:04 21:52	04:39 22:26	05:11 22:02	06:12 20:55	07:14 19:32	08:16 18:14	08:23 16:10	09:05 15:53
23	08:46 16:40	15:47 (1.5) 17:49	18:37 18:49	06:06 20:54	05:02 21:54	04:39 22:26	05:13 22:00	06:14 20:52	07:16 19:30	08:18 18:11	08:25 16:09	09:05 15:54
24	08:44 16:42	15:47 (1.5) 17:51	18:37 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:15 22:58	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:07	09:05 15:54
25	08:42 16:44	15:47 (1.5) 17:53	18:37 18:53	06:01 20:58	04:59 21:57	04:40 22:26	05:17 22:56	06:18 20:47	07:20 19:24	08:22 18:07	08:29 16:06	09:06 15:55
26	08:41 16:46	15:47 (1.5) 17:55	18:37 18:55	06:01 21:00	04:59 21:59	04:41 22:26	05:19 22:56	06:20 20:44	07:22 19:22	08:24 18:07	08:31 16:05	09:06 15:56
27	08:39 16:48	15:47 (1.5) 17:58	18:37 18:57	05:56 21:02	04:56 22:00	04:41 22:26	05:20 22:53	06:22 20:42	07:24 19:19	08:26 18:02	08:33 16:03	09:06 15:57
28	08:37 16:51	15:47 (1.5) 18:00	18:37 18:59	05:54 21:04	04:55 22:02	04:42 22:26	05:22 22:51	06:24 20:39	07:26 19:16	08:28 18:02	08:34 16:02	09:06 15:58
29	08:35 16:53	15:48 (1.5) 18:01	18:37 18:59	05:51 21:06	04:53 22:04	04:42 22:26	05:24 22:51	06:26 20:37	07:28 19:14	08:31 18:02	08:36 16:01	09:06 15:59
30	08:34 16:55	15:49 (1.5) 18:02	18:37 18:59	05:49 21:08	04:52 22:05	04:43 22:26	05:26 22:47	06:28 20:34	07:30 19:11	08:33 18:02	08:38 16:00	09:06 16:00
31	08:32 16:57	15:50 (1.5) 18:03	18:37 18:59	05:47 21:06	04:51 22:07	04:41 22:27	05:28 22:45	06:30 20:32	07:32 19:08	08:35 18:02	08:40 16:01	09:06 16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
Total, worst case	212	45									258	
Sun reduction	0.18	0.32									0.16	
Oper. time red.	0.99	0.99									0.99	
Wind dir. red.	0.67	0.67									0.67	
Total reduction	0.12	0.21									0.10	
Total, real	25	10									27	

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Plumes - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (88)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:48	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:20	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:04	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:37	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:41	15:55
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:22	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:48	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:22	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:31	05:20	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:18	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:23	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:50	06:38	06:16	05:09	04:39	05:06	06:05	07:08	08:10	08:16	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:13	05:07	04:39	05:08	06:07	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:03	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:25	08:30	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:57
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:06	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:07		21:45	20:32		16:52		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Priedes - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (66)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:47
	16:07	17:08	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:35	04:45	04:49	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:55	08:52
	16:13	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:02	06:39	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:50	22:26	22:04	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:11	05:52	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Purvini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (82)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January		February	March	April	May	June	July	August	September	October	November	December		
1	09:06 16:02	54	09:57 (1.1) 12:49 (1.3)	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:11	04:50 22:08	04:44 22:25	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:50	08:40 15:59	09:44 (1.1) 12:28 (1.3)
2	09:06 16:03	53	09:58 (1.1) 12:49 (1.3)	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	04:49 22:10	04:45 22:24	05:32 21:41	06:34 20:27	07:34 19:06	07:40 16:48	08:42 15:58	09:45 (1.1) 12:30 (1.3)
3	09:06 16:05	52	09:58 (1.1) 12:49 (1.3)	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	04:48 22:11	04:46 22:24	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:57	09:44 (1.1) 12:31 (1.3)
4	09:06 16:06	52	09:58 (1.1) 12:49 (1.3)	08:24 17:06	07:18 18:09	06:55 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:45 15:56	09:44 (1.1) 12:32 (1.3)
5	09:05 16:07	50	09:59 (1.1) 12:49 (1.3)	08:22 17:09	07:16 18:11	06:53 20:16	05:38 21:19	04:46 22:14	04:48 22:23	05:38 21:35	06:40 20:19	07:40 18:58	07:47 16:42	08:46 15:56	09:45 (1.1) 12:34 (1.3)
6	09:05 16:09	48	10:00 (1.1) 12:49 (1.3)	08:20 17:11	07:13 18:13	06:50 20:19	05:36 21:21	04:45 22:15	04:49 22:22	05:40 21:33	06:42 20:16	07:43 18:55	07:49 16:40	08:48 15:55	09:46 (1.1) 12:35 (1.3)
7	09:04 16:10	47	10:00 (1.1) 12:49 (1.3)	08:18 17:13	07:10 18:15	06:47 20:21	05:33 21:23	04:44 22:16	04:50 22:21	05:42 21:31	06:44 20:13	07:45 18:52	07:51 16:37	08:50 15:54	09:45 (1.1) 12:35 (1.3)
8	09:03 16:12	46	10:00 (1.1) 12:48 (1.3)	08:16 17:15	07:08 18:17	06:45 20:23	05:31 21:25	04:43 22:17	04:51 22:20	05:44 21:28	06:46 20:11	07:47 18:50	07:53 16:35	08:51 15:54	09:46 (1.1) 12:37 (1.3)
9	09:03 16:14	44	10:01 (1.1) 12:48 (1.3)	08:14 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:42 22:18	04:52 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:33	08:52 15:53	09:47 (1.1) 12:38 (1.3)
10	09:02 16:15	42	10:01 (1.1) 12:47 (1.3)	08:12 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	04:53 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:58 16:31	08:54 15:53	09:47 (1.1) 12:38 (1.3)
11	09:01 16:17	38	10:02 (1.1) 12:46 (1.3)	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:41 22:20	04:55 22:17	05:50 21:22	06:52 20:02	07:53 18:42	08:00 16:29	08:55 15:53	09:47 (1.1) 12:39 (1.3)
12	09:00 16:19	33	10:02 (1.1) 12:44 (1.3)	08:07 17:24	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:21	04:56 22:16	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:27	08:56 15:52	09:49 (1.1) 12:40 (1.3)
13	08:59 16:20	23	10:03 (1.1) 12:44 (1.3)	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:40 22:22	04:57 22:15	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:52	09:49 (1.1) 12:41 (1.3)
14	08:58 16:22	22	10:04 (1.1) 12:46 (1.3)	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:23	04:59 22:14	05:56 21:15	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52	09:49 (1.1) 12:41 (1.3)
15	08:57 16:24	22	10:04 (1.1) 12:46 (1.3)	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	04:40 22:23	05:00 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52	09:50 (1.1) 12:42 (1.3)
16	08:56 16:26	21	10:05 (1.1) 12:46 (1.3)	07:58 17:33	06:46 18:35	06:24 20:39	05:15 21:41	04:39 22:24	05:02 22:11	06:00 21:10	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52	09:50 (1.1) 12:42 (1.3)
17	08:54 16:28	19	10:06 (1.1) 12:45 (1.3)	07:55 17:36	06:44 18:37	06:21 20:42	05:13 21:43	04:39 22:24	05:03 22:10	06:02 21:07	07:04 19:46	08:05 18:27	08:13 16:18	09:01 15:52	09:51 (1.1) 12:43 (1.3)
18	08:53 16:30	17	10:08 (1.1) 12:45 (1.3)	07:53 17:38	06:41 18:39	06:19 20:44	05:11 21:45	04:39 22:25	05:05 22:08	06:04 21:05	07:06 19:44	08:08 18:24	08:15 16:17	09:02 15:52	09:51 (1.1) 12:44 (1.3)
19	08:52 16:32	16	10:08 (1.1) 12:44 (1.3)	07:51 17:40	06:38 18:41	06:16 20:46	05:09 21:47	04:39 22:25	05:07 22:07	06:06 21:02	07:08 19:41	08:10 18:21	08:17 16:15	09:03 15:52	09:52 (1.1) 12:45 (1.3)
20	08:50 16:34	13	10:10 (1.1) 12:43 (1.3)	07:48 17:42	06:36 18:43	06:14 20:48	05:08 21:49	04:39 22:26	05:08 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:19 16:13	09:04 15:53	09:52 (1.1) 12:44 (1.3)
21	08:49 16:36	9	10:13 (1.1) 12:42 (1.3)	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:39 22:26	05:10 22:04	06:10 20:57	07:12 19:35	08:14 18:16	08:21 16:12	09:04 15:53	09:53 (1.1) 12:45 (1.3)
22	08:47 16:38	2	10:16 (1.1) 12:41 (1.3)	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:39 22:26	05:12 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:10	09:05 15:53	09:53 (1.1) 12:45 (1.3)
23	08:46 16:40		10:18 (1.1) 12:40 (1.3)	07:41 17:49	06:28 18:49	06:06 20:54	05:02 21:54	04:40 22:26	05:13 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:25 16:09	09:05 15:54	09:54 (1.1) 12:46 (1.3)
24	08:44 16:42		10:18 (1.1) 12:40 (1.3)	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:56	04:40 22:26	05:15 21:59	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:07	09:06 15:55	09:54 (1.1) 12:46 (1.3)
25	08:43 16:44		10:18 (1.1) 12:40 (1.3)	07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57	04:40 22:26	05:17 21:57	06:18 20:47	07:20 19:25	08:23 17:07	08:29 16:06	09:06 15:55	09:54 (1.1) 12:47 (1.3)
26	08:41 16:46		10:18 (1.1) 12:40 (1.3)	07:33 17:56	06:20 18:56	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	08:25 17:04	08:31 16:05	09:06 15:56	09:55 (1.1) 12:47 (1.3)
27	08:39 16:49		10:18 (1.1) 12:40 (1.3)	07:31 17:58	06:17 18:58	05:56 21:03	04:56 22:01	04:41 22:26	05:21 21:53	06:22 20:42	07:24 19:19	08:27 17:02	08:33 16:04	09:07 15:57	09:55 (1.1) 12:47 (1.3)
28	08:38 16:51		10:18 (1.1) 12:40 (1.3)	07:28 18:00	06:14 19:00	05:54 21:05	04:55 22:02	04:42 22:26	05:22 21:51	06:24 20:40	07:26 19:16	08:29 17:00	08:34 16:02	09:07 15:58	09:55 (1.1) 12:48 (1.3)
29	08:36 16:53		10:18 (1.1) 12:40 (1.3)	07:26 18:02	06:12 19:00	05:52 21:07	04:54 22:04	04:42 22:26	05:24 21:49	06:26 20:37	07:28 19:14	08:31 16:57	08:36 16:01	09:07 15:59	09:56 (1.1) 12:48 (1.3)
30	08:34 16:55		10:18 (1.1) 12:40 (1.3)	07:24 18:04	06:10 19:04	05:49 21:09	04:52 22:05	04:43 22:25	05:26 21:47	06:28 20:34	07:30 19:11	08:38 16:55	08:38 16:00	09:07 15:54	09:57 (1.1) 12:49 (1.3)
31	08:32 16:57		10:18 (1.1) 12:40 (1.3)	07:22 18:06	06:08 19:06	05:46 21:07	04:51 22:07	04:45 22:25	05:28 21:45	06:30 20:32	07:32 19:08	08:36 16:53	08:36 16:00	09:07 15:54	09:57 (1.1) 12:49 (1.3)
Potential sun hours	235		266	366	426	508	530	530	470	385	323	247	196	1613	
Total, worst case		723													
Sun reduction		0.18											0.16	0.10	
Oper. time red.		0.99											0.99	0.99	
Wind dir. red.		0.60											0.58	0.61	
Total reduction		0.11											0.09	0.06	
Total, real		76											18	100	

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Puteni - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (54)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:09	22:25	21:44	20:29	19:09	16:51	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:04	17:02	18:05	20:10	21:13	22:10	22:25	21:42	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:37	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:39	07:45	08:45
	16:06	17:06	18:09	20:15	21:17	22:13	22:23	21:37	20:21	19:01	16:44	15:57
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47	08:47
	16:08	17:09	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:48	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:11	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:53	16:38	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:18	20:23	21:25	22:17	22:20	21:29	20:11	18:50	16:36	15:54
9	09:03	08:14	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:49	07:56	08:53
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:03	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:32	22:20	22:17	21:22	20:03	18:42	16:30	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:28	15:52
13	08:59	08:05	06:55	06:32	05:21	04:40	04:58	05:54	06:56	07:57	08:04	08:58
	16:21	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:59
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:55	18:34	16:24	15:52
15	08:57	08:00	06:49	06:27	05:17	04:40	05:00	05:58	07:00	08:01	08:09	09:00
	16:24	17:31	18:33	20:38	21:39	22:23	22:13	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:47	06:24	05:15	04:39	05:02	06:00	07:02	08:04	08:11	09:01
	16:26	17:34	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:55	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:02
	16:28	17:36	18:37	20:42	21:43	22:25	22:10	21:07	19:46	18:27	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:39	06:16	05:09	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:03	19:41	18:22	16:15	15:52
20	08:51	07:48	06:36	06:14	05:08	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:43	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:51	22:26	22:04	20:58	19:36	18:17	16:12	15:53
22	08:48	07:44	06:31	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:54
23	08:46	07:41	06:28	06:06	05:03	04:40	05:13	06:14	07:16	08:18	08:25	09:06
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:53	19:30	18:12	16:09	15:54
24	08:45	07:39	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:52	20:56	21:56	22:27	21:59	20:50	19:27	18:09	16:08	15:55
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:54	18:54	20:59	21:58	22:27	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:34	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:07
	16:47	17:56	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:40	07:31	06:17	05:57	04:56	04:41	05:21	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:29	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:03	22:26	21:51	20:40	19:17	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:43	05:24	06:26	07:28	07:32	08:37	09:07
	16:53		20:02	21:07	22:04	22:26	21:50	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:06	22:25	21:48	20:35	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:58		20:06		22:07		21:46	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Putnini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (42)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

January		February		March		April		May		June	
1	09:06	08:30	09:22 (4.4.B)	07:26	07:52 (4.7.B)	07:04	05:47	04:50			
16:02		17:00	54	15:57 (4.3.)	18:02	57	17:29 (4.2.)	20:08	21:11	22:08	
2	09:06	08:28	09:21 (4.4.B)	07:23	07:50 (4.7.B)	07:01	05:45	04:49			
16:04		17:02	55	15:56 (4.3.)	18:05	50	17:31 (4.2.)	20:10	21:13	22:10	
3	09:06	08:26	09:20 (4.4.B)	07:21	07:47 (4.7.B)	06:58	05:42	04:48			
16:05		17:04	55	15:56 (4.3.)	18:07	50	17:31 (4.2.)	20:12	21:15	22:11	
4	09:05	08:24	09:18 (4.4.B)	07:18	07:47 (4.7.B)	06:56	05:40	04:47			
16:06		17:06	56	15:54 (4.3.)	18:09	50	17:31 (4.2.)	20:14	21:17	22:12	
5	09:05	08:22	09:18 (4.4.B)	07:16	07:47 (4.7.B)	06:53	05:38	04:46			
16:08		17:09	54	15:53 (4.3.)	18:11	52	17:32 (4.2.)	20:16	21:19	22:14	
6	09:04	08:20	09:17 (4.4.B)	07:13	07:47 (4.7.B)	06:50	05:36	04:45			
16:09		17:11	51	15:51 (4.3.)	18:13	52	17:32 (4.2.)	20:19	21:21	22:15	
7	09:04	08:18	09:16 (4.4.B)	07:10	07:47 (4.7.B)	06:48	05:33	04:44			
16:11		17:13	42	09:58 (4.4.B)	18:15	52	17:32 (4.2.)	20:21	21:23	22:16	
8	09:03	08:16	09:16 (4.4.B)	07:08	07:48 (4.7.B)	06:45	05:31	04:43			
16:12		17:15	43	09:59 (4.4.B)	18:18	49	17:32 (4.2.)	20:23	21:25	22:17	
9	09:02	08:14	09:16 (4.4.B)	07:05	07:36 (4.4.C)	06:42	05:29	04:43			
16:14		17:18	44	10:00 (4.4.B)	18:20	58	17:31 (4.2.)	20:25	21:27	22:18	
10	09:02	08:11	09:15 (4.4.B)	07:02	07:33 (4.4.C)	06:40	05:27	04:42			
16:15		17:20	45	10:00 (4.4.B)	18:22	59	17:31 (4.2.)	20:27	21:29	22:19	
11	09:01	08:09	09:15 (4.4.B)	07:00	07:30 (4.4.C)	06:37	05:25	04:41			
16:17		17:22	46	10:01 (4.4.B)	18:24	53	17:30 (4.2.)	20:29	21:31	22:20	
12	09:00	15:36 (4.3.)	08:07	09:15 (4.4.B)	06:57	07:29 (4.4.C)	06:34	05:23	04:41		
16:19	2	15:38 (4.3.)	17:25	46	10:01 (4.4.B)	18:26	54	17:29 (4.2.)	20:31	21:33	22:21
13	08:59	15:35 (4.3.)	08:05	09:14 (4.4.B)	06:55	07:27 (4.4.C)	06:32	05:21	04:41		
16:21	5	15:40 (4.3.)	17:27	47	10:01 (4.4.B)	18:28	55	17:28 (4.2.)	20:33	21:35	22:22
14	08:58	15:34 (4.3.)	08:02	09:15 (4.4.B)	06:52	07:25 (4.4.C)	06:29	05:19	04:40		
16:22	9	15:43 (4.3.)	17:29	47	10:02 (4.4.B)	18:30	55	17:26 (4.2.)	20:35	21:37	22:22
15	08:57	15:32 (4.3.)	08:00	09:14 (4.4.B)	06:49	07:25 (4.4.C)	06:27	05:17	04:40		
16:24	12	15:44 (4.3.)	17:31	47	10:01 (4.4.B)	18:32	54	17:25 (4.2.)	20:37	21:39	22:23
16	08:56	09:31 (4.4.A)	07:58	09:15 (4.4.B)	06:47	07:24 (4.4.C)	06:24	05:15	04:40		
16:26	20	15:47 (4.3.)	17:34	46	10:01 (4.4.B)	18:35	51	17:23 (4.2.)	20:39	21:41	22:24
17	08:54	09:29 (4.4.A)	07:55	09:14 (4.4.B)	06:44	07:23 (4.4.C)	06:21	05:13	04:39		
16:28	28	15:49 (4.3.)	17:36	47	10:01 (4.4.B)	18:37	45	17:19 (4.2.)	20:42	21:43	22:24
18	08:53	09:28 (4.4.A)	07:53	09:15 (4.4.B)	06:41	07:22 (4.4.C)	06:19	05:11	04:39		
16:30	33	15:51 (4.3.)	17:38	46	10:01 (4.4.B)	18:39	34	07:56 (4.4.C)	20:44	21:45	22:25
19	08:52	09:26 (4.4.A)	07:51	09:15 (4.4.B)	06:38	07:22 (4.4.C)	06:16	05:09	04:39		
16:32	39	15:53 (4.3.)	17:40	45	10:00 (4.4.B)	18:41	35	07:57 (4.4.C)	20:46	21:47	22:25
20	08:50	09:25 (4.4.A)	07:48	09:16 (4.4.B)	06:36	07:22 (4.4.C)	06:14	05:08	04:39		
16:34	42	15:53 (4.3.)	17:42	44	10:00 (4.4.B)	18:43	34	07:56 (4.4.C)	20:48	21:49	22:25
21	08:49	09:25 (4.4.A)	07:46	09:16 (4.4.B)	06:33	07:21 (4.4.C)	06:11	05:06	04:39		
16:36	45	15:55 (4.3.)	17:45	43	09:59 (4.4.B)	18:45	34	07:55 (4.4.C)	20:50	21:50	22:26
22	08:47	09:24 (4.4.A)	07:43	09:17 (4.4.B)	06:30	07:22 (4.4.C)	06:09	05:04	04:40		
16:38	47	15:55 (4.3.)	17:47	41	09:58 (4.4.B)	18:47	33	07:55 (4.4.C)	20:52	21:52	22:26
23	08:46	09:24 (4.4.A)	07:41	09:17 (4.4.B)	06:28	07:22 (4.4.C)	06:06	05:03	04:40		
16:40	49	15:56 (4.3.)	17:49	40	09:57 (4.4.B)	18:49	32	07:54 (4.4.C)	20:54	21:54	22:26
24	08:44	09:23 (4.4.A)	07:38	09:18 (4.4.B)	06:25	07:22 (4.4.C)	06:04	05:01	04:40		
16:42	51	15:56 (4.3.)	17:51	37	09:55 (4.4.B)	18:51	31	07:53 (4.4.C)	20:56	21:56	22:26
25	08:43	09:23 (4.4.A)	07:36	09:20 (4.4.B)	06:22	07:23 (4.4.C)	06:01	05:00	04:41		
16:44	52	15:56 (4.3.)	17:54	34	09:54 (4.4.B)	18:53	29	07:52 (4.4.C)	20:58	21:57	22:26
26	08:41	09:23 (4.4.A)	07:33	08:00 (4.7.B)	06:20	07:23 (4.4.C)	05:59	04:58	04:41		
16:47	53	15:57 (4.3.)	17:56	47	17:24 (4.2.)	18:56	27	07:50 (4.4.C)	21:00	21:59	22:26
27	08:39	09:23 (4.4.A)	07:31	07:58 (4.7.B)	06:17	07:24 (4.4.C)	05:57	04:57	04:41		
16:49	54	15:57 (4.3.)	17:58	54	17:27 (4.2.)	18:58	24	07:48 (4.4.C)	21:02	22:01	22:26
28	08:38	09:23 (4.4.A)	07:28	07:55 (4.7.B)	06:14	07:25 (4.4.C)	05:54	04:55	04:42		
16:51	53	15:57 (4.3.)	18:00	57	17:28 (4.2.)	19:00	21	07:46 (4.4.C)	21:05	22:02	22:26
29	08:36	09:23 (4.4.A)			07:12	08:28 (4.4.C)	05:52	04:54	04:43		
16:53	54	15:57 (4.3.)			20:02	08:44 (4.4.C)	21:07	22:04	22:26		
30	08:34	09:23 (4.4.A)			07:09	08:32 (4.4.C)	05:49	04:53	04:43		
16:55	53	15:57 (4.3.)			20:04	08:38 (4.4.C)	21:09	22:05	22:25		
31	08:32	09:23 (4.4.B)			07:06			04:51			
16:58	53	15:57 (4.3.)			20:06			22:07			
Potential sun hours	235		266		366		426	508	529		
Total, worst case		754		1313		1252					
Sun reduction		0.18		0.32		0.40					
Oper. time red.		0.99		0.99		0.99					
Wind dir. red.		0.64		0.61		0.65					
Total reduction		0.11		0.19		0.26					
Total, real		84		253		320					

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Putnini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (42)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:32	07:32	08:07 (4.4.C)	07:38
	22:25	21:43	20:29	19:08	18:08 (4.2.)	16:51
2	04:45	05:32	06:34	07:34	08:08 (4.4.C)	07:40
	22:24	21:41	20:27	19:06	18:08 (4.2.)	16:48
3	04:46	05:34	06:36	07:36	08:10 (4.4.C)	07:42
	22:24	21:39	20:24	19:03	18:08 (4.2.)	16:46
4	04:47	05:36	06:38	07:38	08:12 (4.4.C)	07:44
	22:23	21:37	20:21	19:00	18:08 (4.2.)	16:44
5	04:48	05:38	06:40	07:40	08:16 (4.4.C)	07:47
	22:22	21:35	20:19	18:58	18:08 (4.2.)	16:42
6	04:49	05:40	06:42	07:43	08:24 (4.7.B)	07:49
	22:22	21:33	20:16	18:55	18:08 (4.2.)	16:40
7	04:50	05:42	06:44	07:45	08:22 (4.7.B)	07:51
	22:21	21:31	20:13	18:53	18:07 (4.2.)	16:38
8	04:51	05:44	06:46	07:47	08:23 (4.7.B)	07:53
	22:20	21:28	20:11	18:50	18:08 (4.2.)	16:36
9	04:52	05:46	06:48	07:49	08:22 (4.7.B)	07:55
	22:19	21:26	20:08	18:47	18:07 (4.2.)	16:33
10	04:54	05:48	06:50	07:51	08:21 (4.7.B)	07:58
	22:18	21:24	20:05	18:45	18:06 (4.2.)	16:31
11	04:55	05:50	06:52	07:53	08:22 (4.7.B)	08:00
	22:17	21:22	20:02	18:42	18:05 (4.2.)	16:30
12	04:56	05:52	06:54	07:55	08:24 (4.7.B)	08:02
	22:16	21:19	20:00	18:39	18:03 (4.2.)	16:28
13	04:58	05:54	06:56	08:25 (4.4.C)	07:57	08:26 (4.7.B)
	22:15	21:17	19:57	08:28 (4.4.C)	18:37	18:02 (4.2.)
14	04:59	05:56	06:58	08:19 (4.4.C)	07:59	08:29 (4.7.B)
	22:14	21:14	19:54	08:33 (4.4.C)	18:34	18:01 (4.2.)
15	05:01	05:58	07:00	08:16 (4.4.C)	08:01	08:31 (4.7.B)
	22:12	21:12	19:52	08:36 (4.4.C)	18:32	17:58 (4.2.)
16	05:02	06:00	07:02	08:14 (4.4.C)	08:03	09:52 (4.4.B)
	22:11	21:10	19:49	08:37 (4.4.C)	18:29	17:54 (4.2.)
17	05:04	06:02	07:04	08:12 (4.4.C)	08:06	09:50 (4.4.B)
	22:10	21:07	19:46	08:39 (4.4.C)	18:27	10:26 (4.4.B)
18	05:05	06:04	07:06	08:11 (4.4.C)	08:08	09:50 (4.4.B)
	22:08	21:05	19:44	08:40 (4.4.C)	18:24	10:28 (4.4.B)
19	05:07	06:06	07:08	08:10 (4.4.C)	08:10	09:48 (4.4.B)
	22:07	21:02	19:41	08:40 (4.4.C)	18:22	10:28 (4.4.B)
20	05:08	06:08	07:10	08:08 (4.4.C)	08:12	09:47 (4.4.B)
	22:05	21:00	19:38	08:41 (4.4.C)	18:19	10:29 (4.4.B)
21	05:10	06:10	07:12	08:08 (4.4.C)	08:14	09:46 (4.4.B)
	22:03	20:57	19:35	08:41 (4.4.C)	18:17	10:29 (4.4.B)
22	05:12	06:12	07:14	08:07 (4.4.C)	08:16	09:46 (4.4.B)
	22:02	20:55	19:33	08:41 (4.4.C)	18:14	10:30 (4.4.B)
23	05:14	06:14	07:16	08:06 (4.4.C)	08:18	09:45 (4.4.B)
	22:00	20:52	19:30	08:41 (4.4.C)	18:12	10:30 (4.4.B)
24	05:15	06:16	07:18	08:06 (4.4.C)	08:20	09:44 (4.4.B)
	21:58	20:50	19:27	08:40 (4.4.C)	18:09	10:30 (4.4.B)
25	05:17	06:18	07:20	08:06 (4.4.C)	07:23	08:45 (4.4.B)
	21:57	20:47	19:25	08:40 (4.4.C)	17:07	09:31 (4.4.B)
26	05:19	06:20	07:22	08:05 (4.4.C)	07:25	08:44 (4.4.B)
	21:55	20:45	19:22	18:01 (4.2.)	17:04	09:31 (4.4.B)
27	05:21	06:22	07:24	08:05 (4.4.C)	07:27	08:44 (4.4.B)
	21:53	20:42	19:19	18:04 (4.2.)	17:02	09:30 (4.4.B)
28	05:23	06:24	07:26	08:05 (4.4.C)	07:29	08:44 (4.4.B)
	21:51	20:40	19:17	18:06 (4.2.)	17:00	09:31 (4.4.B)
29	05:24	06:26	07:28	08:06 (4.4.C)	07:31	08:44 (4.4.B)
	21:49	20:37	19:14	18:07 (4.2.)	16:57	09:30 (4.4.B)
30	05:26	06:28	07:30	08:06 (4.4.C)	07:34	08:45 (4.4.B)
	21:47	20:34	19:11	18:07 (4.2.)	16:55	09:31 (4.4.B)
31	05:28	06:30		07:36	08:45 (4.4.B)	
	21:45	20:32		16:53	09:30 (4.4.B)	
Potential sun hours	530	470	385	323	247	216
Total, worst case			607	1503	1253	
Sun reduction			0.46	0.31	0.16	
Oper. time red.			0.99	0.99	0.99	
Wind dir. red.			0.64	0.63	0.63	
Total reduction			0.29	0.19	0.10	
Total, real			177	287	121	

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Raizes - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (10)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:03	17:00	18:02	20:08	21:11	22:08	22:24	21:43	20:29	19:09	16:51	16:00
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:04	17:02	18:05	20:10	21:13	22:09	22:24	21:41	20:26	19:06	16:48	15:59
3	09:06	08:26	07:21	06:58	05:43	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:58
4	09:05	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:45
	16:07	17:07	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:01	16:44	15:57
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:47	08:46
	16:08	17:09	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:21	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:48	05:34	04:44	04:50	05:42	06:44	07:45	07:51	08:49
	16:11	17:13	18:15	20:21	21:23	22:16	22:21	21:30	20:13	18:53	16:38	15:55
8	09:03	08:16	07:08	06:45	05:31	04:44	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:16	18:18	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:36	15:54
9	09:02	08:14	07:05	06:42	05:29	04:43	04:53	05:46	06:48	07:49	07:55	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34	15:54
10	09:01	08:11	07:02	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:57	08:53
	16:16	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:32	15:53
11	09:01	08:09	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:30	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:57	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:28	15:53
13	08:59	08:05	06:55	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:21	22:14	21:17	19:57	18:37	16:26	15:53
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:23	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:01	08:08	08:59
	16:25	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:55	07:58	06:47	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:34	18:35	20:39	21:41	22:23	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:22	05:13	04:40	05:04	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:37	20:41	21:43	22:24	22:09	21:07	19:46	18:27	16:19	15:52
18	08:53	07:53	06:41	06:19	05:11	04:40	05:05	06:04	07:06	08:08	08:14	09:02
	16:30	17:38	18:39	20:44	21:45	22:24	22:08	21:05	19:44	18:24	16:17	15:53
19	08:51	07:51	06:38	06:16	05:10	04:40	05:07	06:06	07:08	08:10	08:16	09:03
	16:32	17:40	18:41	20:46	21:46	22:25	22:06	21:02	19:41	18:22	16:15	15:53
20	08:50	07:48	06:36	06:14	05:08	04:40	05:09	06:08	07:10	08:12	08:19	09:03
	16:34	17:43	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:11	05:06	04:40	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:17	16:12	15:53
22	08:47	07:43	06:30	06:09	05:05	04:40	05:12	06:12	07:14	08:16	08:23	09:04
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:11	15:54
23	08:46	07:41	06:28	06:06	05:03	04:40	05:14	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:16	06:16	07:18	08:20	08:27	09:05
	16:43	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:08	15:55
25	08:42	07:36	06:22	06:02	05:00	04:41	05:17	06:18	07:20	07:23	08:29	09:06
	16:45	17:54	18:53	20:58	21:57	22:26	21:56	20:47	19:25	17:07	16:07	15:56
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:30	09:06
	16:47	17:56	18:56	21:00	21:59	22:26	21:55	20:45	19:22	17:05	16:05	15:56
27	08:39	07:31	06:17	05:57	04:57	04:42	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:58	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:23	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:25	21:51	20:39	19:17	17:00	16:03	15:58
29	08:36		07:12	05:52	04:54	04:43	05:25	06:26	07:28	07:31	08:36	09:06
	16:53		20:02	21:07	22:04	22:25	21:49	20:37	19:14	16:58	16:02	15:59
30	08:34		07:09	05:50	04:53	04:44	05:27	06:28	07:30	07:33	08:38	09:06
	16:56		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:01	16:00
31	08:32		07:06		04:52		05:28	06:30		07:36		09:06
	16:58		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	529	529	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Riekstini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (72)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:48	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:04	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:37	06:40	07:40	07:47	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:41	15:55
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:40	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:31	05:20	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:18	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:23	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:48	22:26	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:40	05:18	06:20	07:22	07:25	08:31	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:57
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:00
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Rietumi - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (26)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:39
	16:02	17:00	18:02	20:08	21:10	22:08	22:24	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:04	17:02	18:04	20:10	21:13	22:09	22:24	21:41	20:26	19:06	16:48	15:58
3	09:05	08:26	07:20	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:44
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:57
5	09:05	08:22	07:15	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:46	08:46
	16:08	17:09	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:42	07:48	08:48
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:40	15:55
7	09:03	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:44	07:51	08:49
	16:11	17:13	18:15	20:20	21:23	22:16	22:20	21:30	20:13	18:52	16:37	15:54
8	09:03	08:15	07:07	06:45	05:31	04:43	04:51	05:44	06:46	07:46	07:53	08:50
	16:12	17:15	18:17	20:22	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:48	07:55	08:52
	16:14	17:18	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:54	05:48	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:23	20:05	18:44	16:31	15:53
11	09:00	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	07:59	08:54
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:53
12	08:59	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:01	08:56
	16:19	17:24	18:26	20:31	21:33	22:20	22:15	21:19	20:00	18:39	16:27	15:52
13	08:58	08:04	06:54	06:32	05:21	04:40	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:21	22:14	21:17	19:57	18:37	16:26	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:23	22:10	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:04	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:44	22:24	22:08	21:04	19:43	18:24	16:17	15:52
19	08:51	07:50	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:09	08:16	09:02
	16:32	17:40	18:41	20:45	21:46	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:08	04:39	05:08	06:08	07:10	08:12	08:18	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:53
21	08:48	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:45	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:40	05:12	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:26	22:01	20:55	19:32	18:14	16:10	15:54
23	08:45	07:41	06:27	06:06	05:03	04:40	05:13	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:53	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:26	09:05
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:08	15:55
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:28	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:56	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:24	08:30	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:54	20:44	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:25	21:51	20:39	19:16	17:00	16:02	15:58
29	08:35		07:11	05:52	04:54	04:43	05:24	06:26	07:28	07:31	08:36	09:06
	16:53		20:02	21:06	22:03	22:25	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:06		21:45	20:31		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Rudzini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (86)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January			February			March	April	May	June
1	09:06		14:49 (1.2.)	08:30		16:10 (1.1.)	07:26	07:03	05:47	04:50
	16:02	21	15:10 (1.2.)	16:59	15	16:25 (1.1.)	18:02	20:08	21:11	22:08
2	09:06		14:49 (1.2.)	08:28		16:10 (1.1.)	07:23	07:01	05:44	04:49
	16:03	20	15:09 (1.2.)	17:02	17	16:27 (1.1.)	18:04	20:10	21:13	22:10
3	09:06		14:50 (1.2.)	08:26		16:09 (1.1.)	07:21	06:58	05:42	04:47
	16:05	20	15:10 (1.2.)	17:04	20	16:29 (1.1.)	18:06	20:12	21:15	22:11
4	09:05		14:50 (1.2.)	08:24		16:09 (1.1.)	07:18	06:55	05:40	04:46
	16:06	20	15:10 (1.2.)	17:06	21	16:30 (1.1.)	18:09	20:14	21:17	22:12
5	09:05		14:51 (1.2.)	08:22		16:10 (1.1.)	07:15	06:53	05:38	04:46
	16:07	19	15:10 (1.2.)	17:08	21	16:31 (1.1.)	18:11	20:16	21:19	22:14
6	09:04		14:52 (1.2.)	08:20		16:11 (1.1.)	07:13	06:50	05:35	04:45
	16:09	19	15:11 (1.2.)	17:11	20	16:31 (1.1.)	18:13	20:18	21:21	22:15
7	09:04		14:53 (1.2.)	08:18		16:10 (1.1.)	07:10	06:47	05:33	04:44
	16:10	18	15:11 (1.2.)	17:13	20	16:30 (1.1.)	18:15	20:20	21:23	22:16
8	09:03		14:53 (1.2.)	08:16		16:11 (1.1.)	07:08	06:45	05:31	04:43
	16:12	18	15:11 (1.2.)	17:15	19	16:30 (1.1.)	18:17	20:23	21:25	22:17
9	09:02		14:54 (1.2.)	08:14		16:13 (1.1.)	07:05	06:42	05:29	04:42
	16:13	18	15:12 (1.2.)	17:17	16	16:29 (1.1.)	18:19	20:25	21:27	22:18
10	09:02		14:55 (1.2.)	08:11		16:14 (1.1.)	07:02	06:39	05:27	04:42
	16:15	17	15:12 (1.2.)	17:20	13	16:27 (1.1.)	18:22	20:27	21:29	22:19
11	09:01		14:56 (1.2.)	08:09		16:16 (1.1.)	07:00	06:37	05:25	04:41
	16:17	16	15:12 (1.2.)	17:22	10	16:26 (1.1.)	18:24	20:29	21:31	22:20
12	09:00		14:57 (1.2.)	08:07			06:57	06:34	05:23	04:41
	16:19	14	15:11 (1.2.)	17:24			18:26	20:31	21:33	22:21
13	08:59		14:58 (1.2.)	08:05			06:54	06:32	05:21	04:40
	16:20	12	15:10 (1.2.)	17:26			18:28	20:33	21:35	22:22
14	08:58		15:00 (1.2.)	08:02			06:52	06:29	05:19	04:40
	16:22	10	15:10 (1.2.)	17:29			18:30	20:35	21:37	22:22
15	08:57		15:02 (1.2.)	08:00			06:49	06:26	05:17	04:39
	16:24	6	15:08 (1.2.)	17:31			18:32	20:37	21:39	22:23
16	08:55			07:58			06:46	06:24	05:15	04:39
	16:26			17:33			18:34	20:39	21:41	22:24
17	08:54			07:55			06:44	06:21	05:13	04:39
	16:28			17:35			18:36	20:41	21:43	22:24
18	08:53			07:53			06:41	06:19	05:11	04:39
	16:30			17:38			18:39	20:43	21:45	22:25
19	08:52			07:51			06:38	06:16	05:09	04:39
	16:32			17:40			18:41	20:46	21:47	22:25
20	08:50			07:48			06:36	06:14	05:07	04:39
	16:34			17:42			18:43	20:48	21:48	22:25
21	08:49			07:46			06:33	06:11	05:06	04:39
	16:36			17:44			18:45	20:50	21:50	22:26
22	08:47			07:43			06:30	06:09	05:04	04:39
	16:38			17:47			18:47	20:52	21:52	22:26
23	08:46			07:41			06:28	06:06	05:02	04:39
	16:40			17:49			18:49	20:54	21:54	22:26
24	08:44			07:38			06:25	06:04	05:01	04:40
	16:42			17:51			18:51	20:56	21:56	22:26
25	08:43			07:36			06:22	06:01	04:59	04:40
	16:44			17:53			18:53	20:58	21:57	22:26
26	08:41			07:33			06:19	05:59	04:58	04:41
	16:46			17:56			18:55	21:00	21:59	22:26
27	08:39			07:31			06:17	05:56	04:56	04:41
	16:48			17:58			18:57	21:02	22:01	22:26
28	08:37		16:12 (1.1.)	07:28			06:14	05:54	04:55	04:42
	16:51	2	16:14 (1.1.)	18:00			19:00	21:04	22:02	22:26
29	08:36		16:11 (1.1.)				07:11	05:51	04:53	04:42
	16:53	6	16:17 (1.1.)				20:02	21:07	22:04	22:25
30	08:34		16:11 (1.1.)				07:09	05:49	04:52	04:43
	16:55	8	16:19 (1.1.)				20:04	21:09	22:05	22:25
31	08:32		16:10 (1.1.)				07:06		04:51	
	16:57	12	16:22 (1.1.)				20:06		22:07	
Potential sun hours	235			266			366	426	508	530
Total, worst case		276			192					
Sun reduction		0.18			0.32					
Oper. time red.		0.99			0.99					
Wind dir. red.		0.66			0.67					
Total reduction		0.12			0.21					
Total, real		32			41					

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Rudzini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (86)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:32	07:32	07:38	15:43 (1.1.)
	22:25	21:43	20:29	19:08	16:50	15:57 (1.1.)
2	04:45	05:32	06:34	07:34	07:40	15:42 (1.1.)
	22:24	21:41	20:26	19:06	16:48	15:59 (1.1.)
3	04:45	05:34	06:36	07:36	07:42	15:41 (1.1.)
	22:24	21:39	20:24	19:03	16:46	15:59 (1.1.)
4	04:46	05:36	06:38	07:38	07:44	15:40 (1.1.)
	22:23	21:37	20:21	19:00	16:44	16:00 (1.1.)
5	04:47	05:38	06:40	07:40	07:47	15:40 (1.1.)
	22:22	21:35	20:18	18:58	16:42	16:01 (1.1.)
6	04:48	05:40	06:42	07:42	07:49	15:40 (1.1.)
	22:22	21:33	20:16	18:55	16:39	16:00 (1.1.)
7	04:50	05:41	06:44	07:44	07:51	15:40 (1.1.)
	22:21	21:30	20:13	18:52	16:37	16:01 (1.1.)
8	04:51	05:43	06:46	07:46	07:53	15:40 (1.1.)
	22:20	21:28	20:10	18:50	16:35	16:00 (1.1.)
9	04:52	05:45	06:48	07:49	07:55	15:41 (1.1.)
	22:19	21:26	20:08	18:47	16:33	15:58 (1.1.)
10	04:53	05:47	06:50	07:51	07:57	15:41 (1.1.)
	22:18	21:24	20:05	18:44	16:31	15:55 (1.1.)
11	04:55	05:49	06:52	07:53	08:00	15:41 (1.1.)
	22:17	21:21	20:02	18:42	16:29	15:53 (1.1.)
12	04:56	05:51	06:54	07:55	08:02	15:43 (1.1.)
	22:16	21:19	20:00	18:39	16:27	15:51 (1.1.)
13	04:57	05:53	06:56	07:57	08:04	15:43 (1.1.)
	22:15	21:17	19:57	18:37	16:25	15:49 (1.1.)
14	04:59	05:55	06:58	07:59	08:06	15:45 (1.1.)
	22:13	21:14	19:54	18:34	16:24	15:47 (1.1.)
15	05:00	05:57	07:00	08:01	08:08	
	22:12	21:12	19:52	18:31	16:22	15:52
16	05:02	06:00	07:02	08:03	08:10	15:52
	22:11	21:10	19:49	18:29	16:20	15:52
17	05:03	06:02	07:04	08:05	08:12	15:52
	22:09	21:07	19:46	18:26	16:18	15:52
18	05:05	06:04	07:06	08:07	08:14	15:52
	22:08	21:05	19:43	18:24	16:17	15:52
19	05:06	06:06	07:08	08:10	08:17	15:52
	22:07	21:02	19:41	18:21	16:15	15:52
20	05:08	06:08	07:10	08:12	08:19	15:52
	22:05	21:00	19:38	18:19	16:13	15:52
21	05:10	06:10	07:12	08:14	08:21	15:52
	22:03	20:57	19:35	18:16	16:12	15:53
22	05:11	06:12	07:14	08:16	08:23	15:53
	22:02	20:55	19:33	18:14	16:10	15:53
23	05:13	06:14	07:16	08:18	08:25	15:54
	22:00	20:52	19:30	18:11	16:09	15:54
24	05:15	06:16	07:18	08:20	08:27	15:54
	21:58	20:50	19:27	18:09	16:07	15:54
25	05:17	06:18	07:20	07:22	08:29	15:54
	21:57	20:47	19:24	17:07	16:06	15:55
26	05:19	06:20	07:22	07:25	08:31	15:55
	21:55	20:45	19:22	17:04	16:05	15:56
27	05:20	06:22	07:24	07:27	08:32	15:56
	21:53	20:42	19:19	17:02	16:03	15:57
28	05:22	06:24	07:26	07:29	08:34	15:57
	21:51	20:39	19:16	16:59	16:02	15:58
29	05:24	06:26	07:28	07:31	08:36	15:58
	21:49	20:37	19:14	16:57	16:01	15:58
30	05:26	06:28	07:30	07:33	08:38	15:58
	21:47	20:34	19:11	16:55	16:00	15:59
31	05:28	06:30		07:36		15:59
	21:45	20:32		16:53	11	15:56
Potential sun hours	530	470	385	323	247	215
Total, worst case				15	252	628
Sun reduction				0.31	0.16	0.10
Oper. time red.				0.99	0.99	0.99
Wind dir. red.				0.67	0.67	0.66
Total reduction				0.20	0.10	0.07
Total, real				3	26	42

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ravas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (98)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:02	08:30 17:00	07:26 18:02	16:44 (1.2.) 17:18 (1.2.)	07:03 20:08	19:09 (1.1.) 21:11
2	09:06 16:03	08:28 17:02	07:23 18:04	16:43 (1.2.) 17:18 (1.2.)	07:01 20:10	19:08 (1.1.) 21:13
3	09:06 16:05	08:26 17:04	07:21 18:06	16:44 (1.2.) 17:19 (1.2.)	06:58 20:12	19:07 (1.1.) 21:15
4	09:05 16:06	08:24 17:06	07:18 18:09	16:43 (1.2.) 17:18 (1.2.)	06:55 20:14	19:08 (1.1.) 21:17
5	09:05 16:07	08:22 17:08	07:15 18:11	16:43 (1.2.) 17:18 (1.2.)	06:53 20:16	19:07 (1.1.) 21:19
6	09:04 16:09	08:20 17:11	07:13 18:13	16:43 (1.2.) 17:18 (1.2.)	06:50 20:18	19:07 (1.1.) 21:21
7	09:04 16:10	08:18 17:13	07:10 18:15	16:43 (1.2.) 17:17 (1.2.)	06:47 20:20	19:08 (1.1.) 21:23
8	09:03 16:12	08:16 17:15	07:08 18:17	16:43 (1.2.) 17:16 (1.2.)	06:45 20:23	19:08 (1.1.) 21:25
9	09:02 16:14	08:14 17:18	07:05 18:19	16:44 (1.2.) 17:16 (1.2.)	06:42 20:25	19:09 (1.1.) 21:27
10	09:01 16:15	08:11 17:20	07:02 18:22	16:45 (1.2.) 17:14 (1.2.)	06:39 20:27	19:09 (1.1.) 21:29
11	09:01 16:17	08:09 17:22	07:00 18:24	16:45 (1.2.) 17:13 (1.2.)	06:37 20:29	19:10 (1.1.) 21:31
12	09:00 16:19	08:07 17:24	06:57 18:26	16:47 (1.2.) 17:12 (1.2.)	06:34 20:31	19:13 (1.1.) 21:33
13	08:59 16:20	08:05 17:27	06:54 18:28	16:49 (1.2.) 17:09 (1.2.)	06:32 20:33	19:25 (1.1.) 21:35
14	08:58 16:22	08:02 17:29	06:52 18:30	16:51 (1.2.) 17:06 (1.2.)	06:29 20:35	19:25 (1.1.) 21:37
15	08:57 16:24	08:00 17:31	06:49 18:32	16:56 (1.2.) 17:00 (1.2.)	06:26 20:37	19:25 (1.1.) 21:39
16	08:55 16:26	07:58 17:33	06:46 18:34	06:24 20:39	06:24 20:39	19:25 (1.1.) 21:41
17	08:54 16:28	07:55 17:36	06:44 18:36	06:21 20:41	06:21 20:41	19:25 (1.1.) 21:43
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	06:19 20:43	19:25 (1.1.) 21:45
19	08:52 16:32	07:51 17:40	06:38 18:41	06:16 20:46	06:16 20:46	19:25 (1.1.) 21:47
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	06:14 20:48	19:25 (1.1.) 21:49
21	08:49 16:36	07:46 17:44	16:57 (1.2.) 17:08 (1.2.)	06:33 18:45	06:11 20:50	19:25 (1.1.) 21:50
22	08:47 16:38	07:43 17:47	16:53 (1.2.) 17:11 (1.2.)	06:30 18:47	06:09 20:52	19:25 (1.1.) 21:52
23	08:46 16:40	07:41 17:49	16:51 (1.2.) 17:13 (1.2.)	06:28 18:49	06:06 20:54	19:25 (1.1.) 21:54
24	08:44 16:42	07:38 17:51	16:49 (1.2.) 17:14 (1.2.)	06:25 18:51	06:04 20:56	19:25 (1.1.) 21:55
25	08:42 16:44	07:36 17:53	16:48 (1.2.) 17:16 (1.2.)	06:22 18:53	06:01 20:58	19:25 (1.1.) 21:57
26	08:41 16:46	07:33 17:56	16:47 (1.2.) 17:17 (1.2.)	06:19 18:55	18:22 (1.1.) 18:27 (1.1.)	19:25 (1.1.) 21:59
27	08:39 16:49	07:31 17:58	16:46 (1.2.) 17:17 (1.2.)	06:17 18:57	18:17 (1.1.) 18:29 (1.1.)	19:25 (1.1.) 22:00
28	08:37 16:51	07:28 18:00	16:45 (1.2.) 17:18 (1.2.)	06:14 19:00	18:14 (1.1.) 18:31 (1.1.)	19:25 (1.1.) 22:02
29	08:36 16:53		07:11 20:02	19:13 (1.1.) 19:34 (1.1.)	05:52 21:06	19:25 (1.1.) 22:04
30	08:34 16:55		07:09 20:04	19:11 (1.1.) 19:35 (1.1.)	05:49 21:09	19:25 (1.1.) 22:05
31	08:32 16:57		07:06 20:06	19:10 (1.1.) 19:35 (1.1.)	05:51 22:07	19:25 (1.1.) 22:07
Potential sun hours	235	266	366	426	508	529
Total, worst case		198	533	288		
Sun reduction		0.32	0.40	0.57		
Oper. time red.		0.99	0.99	0.99		
Wind dir. red.		0.68	0.67	0.66		
Total reduction		0.22	0.27	0.37		
Total, real		43	142	108		

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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Ravas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (98)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December		
1	04:44 22:25	05:30 21:43	06:32 20:29	19:10 (1.1.) 19:27 (1.1.)	07:32 19:08	17:27 (1.2.) 16:50	08:40 15:59	
2	04:45 22:24	05:32 21:41	06:34 20:26	19:07 (1.1.) 19:28 (1.1.)	07:34 19:06	17:25 (1.2.) 16:48	08:41 15:58	
3	04:46 22:24	05:34 21:39	06:36 20:24	19:06 (1.1.) 19:29 (1.1.)	07:36 19:03	17:23 (1.2.) 16:46	08:43 15:57	
4	04:47 22:23	05:36 21:37	06:38 20:21	19:05 (1.1.) 19:29 (1.1.)	07:38 19:00	17:22 (1.2.) 16:44	08:45 15:56	
5	04:48 22:22	05:38 21:35	06:40 20:18	19:04 (1.1.) 19:30 (1.1.)	07:40 18:58	17:21 (1.2.) 16:42	08:46 15:56	
6	04:49 22:22	05:40 21:33	06:42 20:16	19:03 (1.1.) 19:30 (1.1.)	07:42 18:55	17:20 (1.2.) 16:39	08:48 15:55	
7	04:50 22:21	05:42 21:30	06:44 20:13	19:02 (1.1.) 19:30 (1.1.)	07:44 18:52	17:19 (1.2.) 16:37	08:49 15:54	
8	04:51 22:20	05:44 21:28	06:46 20:10	19:02 (1.1.) 19:30 (1.1.)	07:46 18:50	17:18 (1.2.) 16:35	08:51 15:54	
9	04:52 22:19	05:46 21:26	06:48 20:08	19:02 (1.1.) 19:29 (1.1.)	07:49 18:47	17:18 (1.2.) 16:33	08:52 15:53	
10	04:53 22:18	05:48 21:24	06:50 20:05	19:02 (1.1.) 19:29 (1.1.)	07:51 18:44	17:18 (1.2.) 16:31	08:53 15:53	
11	04:55 22:17	05:50 21:21	06:52 20:02	19:02 (1.1.) 19:28 (1.1.)	07:53 18:42	17:18 (1.2.) 16:29	08:55 15:52	
12	04:56 22:16	05:52 21:19	06:54 20:00	19:02 (1.1.) 19:27 (1.1.)	07:55 18:39	17:17 (1.2.) 16:27	08:56 15:52	
13	04:57 22:15	05:54 21:17	06:56 19:57	19:02 (1.1.) 19:26 (1.1.)	07:57 18:37	17:17 (1.2.) 16:25	08:57 15:52	
14	04:59 22:13	05:56 21:14	06:58 19:54	19:03 (1.1.) 19:24 (1.1.)	07:59 18:34	17:18 (1.2.) 16:24	08:58 15:52	
15	05:00 22:12	05:58 21:12	07:00 19:51	19:04 (1.1.) 19:22 (1.1.)	08:01 18:31	17:19 (1.2.) 16:22	08:59 15:52	
16	05:02 22:11	06:00 21:10	07:02 19:49	19:06 (1.1.) 19:19 (1.1.)	08:03 18:29	17:19 (1.2.) 16:20	09:00 15:52	13:16 (1.5.) 13:21 (1.5.)
17	05:03 22:09	06:02 21:07	07:04 19:46	19:08 (1.1.) 19:15 (1.1.)	08:05 18:26	17:20 (1.2.) 16:18	09:01 15:52	13:15 (1.5.) 13:22 (1.5.)
18	05:05 22:08	06:04 21:05	07:06 19:43	08:07 18:24	08:07 17:45	17:21 (1.2.) 16:17	09:02 15:52	13:15 (1.5.) 13:23 (1.5.)
19	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:21	18:24 17:23	16:17 16:15	09:03 15:52	13:15 (1.5.) 13:23 (1.5.)
20	05:08 22:05	06:08 21:00	07:10 19:38	08:12 18:19	18:26 17:25	16:18 16:13	09:03 15:53	13:15 (1.5.) 13:24 (1.5.)
21	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:16	17:29 (1.2.) 17:36 (1.2.)	08:21 16:12	09:04 15:53	13:16 (1.5.) 13:25 (1.5.)
22	05:12 22:02	06:12 20:55	07:14 19:33	08:16 18:14	16:16 16:10	08:23 16:10	09:05 15:53	13:16 (1.5.) 13:25 (1.5.)
23	05:13 22:00	06:14 20:52	07:16 19:30	08:18 18:11	16:18 16:09	08:25 16:09	09:05 15:54	13:16 (1.5.) 13:25 (1.5.)
24	05:15 21:58	06:16 20:50	07:18 19:27	08:20 18:09	16:10 16:07	08:27 16:07	09:06 15:55	13:18 (1.5.) 13:26 (1.5.)
25	05:17 21:57	06:18 20:47	07:20 19:24	08:22 17:07	16:07 16:06	16:07 16:06	15:55 15:55	13:18 (1.5.) 13:26 (1.5.)
26	05:19 21:55	06:20 20:45	07:22 19:22	08:25 17:04	16:06 16:05	16:06 16:05	15:55 15:56	13:19 (1.5.) 13:26 (1.5.)
27	05:20 21:53	06:22 20:42	07:24 19:19	08:27 17:02	16:04 16:03	16:05 16:03	15:56 15:57	13:20 (1.5.) 13:26 (1.5.)
28	05:22 21:51	06:24 20:39	07:26 19:16	08:29 17:00	16:02 16:02	16:04 16:02	09:06 15:58	13:22 (1.5.) 13:25 (1.5.)
29	05:24 21:49	06:26 20:37	07:28 19:14	17:33 (1.2.) 17:46 (1.2.)	07:31 16:57	08:36 16:01	09:07 15:59	
30	05:26 21:47	06:28 20:34	07:30 19:11	17:30 (1.2.) 17:48 (1.2.)	07:33 16:55	08:38 16:00	09:07 16:00	
31	05:28 21:45	06:30 20:32	19:13 (1.1.) 19:25 (1.1.)	07:36 16:53	07:36 16:53	09:06 16:01	09:06 16:01	
Potential sun hours	530	470	385	323	247	215		
Total, worst case		12	413	602		96		
Sun reduction		0.52	0.46	0.31		0.10		
Oper. time red.		0.99	0.99	0.99		0.99		
Wind dir. red.		0.66	0.66	0.68		0.63		
Total reduction		0.34	0.30	0.21		0.06		
Total, real		4	125	124		6		

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Rujas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (7)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:39
	16:03	17:00	18:02	20:08	21:11	22:08	22:24	21:43	20:29	19:08	16:51	16:00
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:04	17:02	18:05	20:10	21:13	22:09	22:24	21:41	20:26	19:06	16:48	15:59
3	09:05	08:26	07:21	06:58	05:43	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:58
4	09:05	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:44
	16:07	17:07	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:57
5	09:05	08:22	07:15	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:46	08:46
	16:08	17:09	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:33	20:16	18:55	16:40	15:55
7	09:03	08:18	07:10	06:48	05:34	04:44	04:50	05:42	06:44	07:45	07:51	08:49
	16:11	17:13	18:15	20:21	21:23	22:16	22:21	21:30	20:13	18:53	16:38	15:55
8	09:03	08:16	07:08	06:45	05:31	04:44	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:16	18:18	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:36	15:54
9	09:02	08:13	07:05	06:42	05:29	04:43	04:53	05:46	06:48	07:49	07:55	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34	15:54
10	09:01	08:11	07:02	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:57	08:53
	16:16	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:32	15:53
11	09:00	08:09	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	07:59	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:30	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:20	22:16	21:19	20:00	18:39	16:28	15:53
13	08:59	08:05	06:54	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:21	22:14	21:17	19:57	18:37	16:26	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:23	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:01	08:08	08:59
	16:25	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:34	18:35	20:39	21:41	22:23	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:22	05:13	04:40	05:04	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:37	20:41	21:43	22:24	22:09	21:07	19:46	18:27	16:19	15:52
18	08:53	07:53	06:41	06:19	05:11	04:40	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:24	22:08	21:05	19:44	18:24	16:17	15:53
19	08:51	07:51	06:38	06:16	05:10	04:40	05:07	06:06	07:08	08:10	08:16	09:03
	16:32	17:40	18:41	20:46	21:46	22:25	22:06	21:02	19:41	18:22	16:15	15:53
20	08:50	07:48	06:36	06:14	05:08	04:40	05:09	06:08	07:10	08:12	08:18	09:03
	16:34	17:43	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:11	05:06	04:40	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:17	16:12	15:53
22	08:47	07:43	06:30	06:09	05:05	04:40	05:12	06:12	07:14	08:16	08:23	09:04
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:11	15:54
23	08:46	07:41	06:28	06:06	05:03	04:40	05:14	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:16	06:16	07:18	08:20	08:26	09:05
	16:43	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:08	15:55
25	08:42	07:36	06:22	06:02	05:00	04:41	05:17	06:18	07:20	07:22	08:28	09:06
	16:45	17:54	18:53	20:58	21:57	22:26	21:56	20:47	19:25	17:07	16:07	15:56
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:30	09:06
	16:47	17:56	18:56	21:00	21:59	22:26	21:55	20:45	19:22	17:05	16:05	15:56
27	08:39	07:31	06:17	05:57	04:57	04:42	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:58	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:23	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:25	21:51	20:39	19:17	17:00	16:03	15:58
29	08:35		07:12	05:52	04:54	04:43	05:25	06:26	07:28	07:31	08:36	09:06
	16:53		20:02	21:06	22:03	22:25	21:49	20:37	19:14	16:58	16:02	15:59
30	08:34		07:09	05:50	04:53	04:44	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:01	16:00
31	08:32		07:06		04:52		05:28	06:30		07:36		09:06
	16:58		20:06		22:06		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	529	529	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Silenieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (19)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06	08:30	07:26	07:03	05:47	04:50
	16:03	17:00	18:02	20:08	21:11	22:08
2	09:06	08:28	07:23	07:01	05:45	04:49
	16:04	17:02	18:04	20:10	21:13	22:09
3	09:05	08:26	07:21	06:58	05:42	04:48
	16:05	17:04	18:07	20:12	21:15	22:11
4	09:05	08:24	07:18	06:55	05:40	04:47
	16:06	17:06	18:09	20:14	21:17	22:12
5	09:05	08:22	07:15	06:53	05:38	04:46
	16:08	17:09	18:11	20:16	21:19	22:13
6	09:04	08:20	07:13	06:50	05:36	04:45
	16:09	17:11	18:13	20:18	21:21	22:14
7	09:04	08:18	07:10	06:48	05:33	04:44
	16:11	17:13	18:15	20:20	21:23	22:16
8	09:03	08:16	07:08	06:45	19:46 (2.2.)	05:31
	16:12	17:15	18:17	20:23	7 19:53 (2.2.)	21:25
9	09:02	08:13	07:05	06:42	19:45 (2.2.)	05:29
	16:14	17:18	18:20	20:25	11 19:56 (2.2.)	21:27
10	09:01	08:11	07:02	06:40	19:43 (2.2.)	05:27
	16:15	17:20	18:22	20:27	14 19:57 (2.2.)	21:29
11	09:00	08:09	07:00	06:37	19:42 (2.2.)	05:25
	16:17	17:22	18:24	20:29	18 20:00 (2.2.)	21:31
12	09:00	08:07	06:57	06:34	19:40 (2.2.)	05:23
	16:19	17:25	18:26	20:31	21 20:01 (2.2.)	21:33
13	08:59	08:05	06:54	06:32	19:39 (2.2.)	05:21
	16:21	17:27	18:28	20:33	23 20:02 (2.2.)	21:35
14	08:58	08:02	06:52	06:29	19:39 (2.2.)	05:19
	16:23	17:29	18:30	20:35	23 20:02 (2.2.)	21:37
15	08:56	08:00	06:49	06:27	19:38 (2.2.)	05:17
	16:24	17:31	18:32	20:37	24 20:02 (2.2.)	21:39
16	08:55	07:58	06:46	06:24	19:39 (2.2.)	05:15
	16:26	17:33	18:34	20:39	23 20:02 (2.2.)	21:41
17	08:54	07:55	06:44	06:21	19:38 (2.2.)	05:13
	16:28	17:36	18:37	20:41	23 20:01 (2.2.)	21:43
18	08:53	07:53	06:41	06:19	19:39 (2.2.)	05:11
	16:30	17:38	18:39	20:43	21 20:00 (2.2.)	21:45
19	08:51	07:51	06:38	06:16	19:40 (2.2.)	05:10
	16:32	17:40	18:41	20:46	20 20:00 (2.2.)	21:46
20	08:50	07:48	06:36	06:14	19:40 (2.2.)	05:08
	16:34	17:42	18:43	20:48	18 19:58 (2.2.)	21:48
21	08:49	07:46	06:33	06:11	19:41 (2.2.)	05:06
	16:36	17:45	18:45	20:50	16 19:57 (2.2.)	21:50
22	08:47	07:43	06:30	06:09	19:42 (2.2.)	05:04
	16:38	17:47	18:47	20:52	13 19:55 (2.2.)	21:52
23	08:46	07:41	06:28	06:06	19:46 (2.2.)	05:03
	16:40	17:49	18:49	20:54	5 19:51 (2.2.)	21:54
24	08:44	07:38	06:25	06:04	05:01	20:01 (2.1.)
	16:42	17:51	18:51	20:56	42 20:43 (2.1.)	22:26
25	08:42	07:36	06:22	06:01	05:00	20:01 (2.1.)
	16:45	17:54	18:53	20:58	21:57	41 20:42 (2.1.)
26	08:41	07:33	06:20	05:59	04:58	20:01 (2.1.)
	16:47	17:56	18:55	21:00	21:59	42 20:43 (2.1.)
27	08:39	07:31	06:17	05:57	04:57	20:02 (2.1.)
	16:49	17:58	18:58	21:02	22:00	41 20:43 (2.1.)
28	08:37	07:28	06:14	05:54	04:55	20:02 (2.1.)
	16:51	18:00	19:00	21:04	22:02	41 20:43 (2.1.)
29	08:35		07:12	05:52	04:54	20:03 (2.1.)
	16:53		20:02	21:06	22:03	40 20:43 (2.1.)
30	08:34		07:09	05:49	04:53	20:03 (2.1.)
	16:55		20:04	21:09	22:05	40 20:43 (2.1.)
31	08:32		07:06		04:51	20:03 (2.1.)
	16:58		20:06		22:06	39 20:42 (2.1.)
Potential sun hours	235	266	366	426	508	529
Total, worst case				280	1096	1033
Sun reduction				0.57	0.59	0.62
Oper. time red.				0.99	0.99	0.99
Wind dir. red.				0.64	0.63	0.63
Total reduction				0.36	0.36	0.38
Total, real				102	399	396

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Silenieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (19)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

July			August			September			October			November			December		
1	04:44		20:12 (2.1.)	05:30		20:13 (2.1.)	06:32		19:41 (2.2.)	07:32		07:38			08:39		
	22:24	34	20:46 (2.1.)	21:43	38	20:51 (2.1.)	20:29	18	19:59 (2.2.)	19:08		16:51			15:59		
2	04:45		20:13 (2.1.)	05:32		20:14 (2.1.)	06:34		19:41 (2.2.)	07:34		07:40			08:41		
	22:24	34	20:47 (2.1.)	21:41	37	20:51 (2.1.)	20:26	15	19:56 (2.2.)	19:06		16:48			15:58		
3	04:46		20:13 (2.1.)	05:34		20:13 (2.1.)	06:36		19:42 (2.2.)	07:36		07:42			08:43		
	22:23	34	20:47 (2.1.)	21:39	36	20:49 (2.1.)	20:24	11	19:53 (2.2.)	19:03		16:46			15:58		
4	04:47		20:12 (2.1.)	05:36		20:14 (2.1.)	06:38		19:43 (2.2.)	07:38		07:44			08:45		
	22:23	35	20:47 (2.1.)	21:37	34	20:48 (2.1.)	20:21	7	19:50 (2.2.)	19:00		16:44			15:57		
5	04:48		20:12 (2.1.)	05:38		20:15 (2.1.)	06:40			07:40		07:46			08:46		
	22:22	35	20:47 (2.1.)	21:35	33	20:48 (2.1.)	20:18			18:58		16:42			15:56		
6	04:49		20:12 (2.1.)	05:40		20:16 (2.1.)	06:42			07:42		07:49			08:48		
	22:21	36	20:48 (2.1.)	21:33	31	20:47 (2.1.)	20:16			18:55		16:40			15:55		
7	04:50		20:12 (2.1.)	05:42		20:18 (2.1.)	06:44			07:44		07:51			08:49		
	22:21	36	20:48 (2.1.)	21:30	28	20:46 (2.1.)	20:13			18:52		16:38			15:55		
8	04:51		20:11 (2.1.)	05:44		20:18 (2.1.)	06:46			07:47		07:53			08:51		
	22:20	37	20:48 (2.1.)	21:28	25	20:43 (2.1.)	20:10			18:50		16:36			15:54		
9	04:52		20:11 (2.1.)	05:46		20:20 (2.1.)	06:48			07:49		07:55			08:52		
	22:19	38	20:49 (2.1.)	21:26	21	20:41 (2.1.)	20:08			18:47		16:34			15:54		
10	04:54		20:12 (2.1.)	05:48		20:23 (2.1.)	06:50			07:51		07:57			08:53		
	22:18	38	20:50 (2.1.)	21:24	16	20:39 (2.1.)	20:05			18:45		16:32			15:53		
11	04:55		20:12 (2.1.)	05:50		20:26 (2.1.)	06:52			07:53		07:59			08:55		
	22:17	38	20:50 (2.1.)	21:21	9	20:35 (2.1.)	20:02			18:42		16:30			15:53		
12	04:56		20:11 (2.1.)	05:52			06:54			07:55		08:02			08:56		
	22:16	39	20:50 (2.1.)	21:19			20:00			18:39		16:28			15:53		
13	04:58		20:11 (2.1.)	05:54			06:56			07:57		08:04			08:57		
	22:14	39	20:50 (2.1.)	21:17			19:57			18:37		16:26			15:52		
14	04:59		20:11 (2.1.)	05:56			06:58			07:59		08:06			08:58		
	22:13	41	20:52 (2.1.)	21:14			19:54			18:34		16:24			15:52		
15	05:01		20:11 (2.1.)	05:58			07:00			08:01		08:08			08:59		
	22:12	40	20:51 (2.1.)	21:12			19:52			18:32		16:22			15:52		
16	05:02		20:11 (2.1.)	06:00			07:02			08:03		08:10			09:00		
	22:11	40	20:51 (2.1.)	21:09			19:49			18:29		16:20			15:52		
17	05:04		20:11 (2.1.)	06:02			07:04			08:05		08:12			09:01		
	22:09	41	20:52 (2.1.)	21:07			19:46			18:27		16:19			15:52		
18	05:05		20:11 (2.1.)	06:04			07:06			08:07		08:14			09:02		
	22:08	41	20:52 (2.1.)	21:05			19:43			18:24		16:17			15:52		
19	05:07		20:11 (2.1.)	06:06			07:08			08:10		08:16			09:03		
	22:06	42	20:53 (2.1.)	21:02			19:41			18:22		16:15			15:53		
20	05:08		20:11 (2.1.)	06:08		19:51 (2.2.)	07:10			08:12		08:18			09:03		
	22:05	41	20:52 (2.1.)	21:00	7	19:58 (2.2.)	19:38			18:19		16:14			15:53		
21	05:10		20:11 (2.1.)	06:10		19:48 (2.2.)	07:12			08:14		08:21			09:04		
	22:03	42	20:53 (2.1.)	20:57	13	20:01 (2.2.)	19:35			18:17		16:12			15:53		
22	05:12		20:10 (2.1.)	06:12		19:46 (2.2.)	07:14			08:16		08:23			09:04		
	22:02	43	20:53 (2.1.)	20:55	16	20:02 (2.2.)	19:33			18:14		16:11			15:54		
23	05:14		20:11 (2.1.)	06:14		19:44 (2.2.)	07:16			08:18		08:25			09:05		
	22:00	42	20:53 (2.1.)	20:52	19	20:03 (2.2.)	19:30			18:12		16:09			15:54		
24	05:15		20:10 (2.1.)	06:16		19:42 (2.2.)	07:18			08:20		08:27			09:05		
	21:58	43	20:53 (2.1.)	20:50	21	20:03 (2.2.)	19:27			18:09		16:08			15:55		
25	05:17		20:11 (2.1.)	06:18		19:41 (2.2.)	07:20			07:22		08:28			09:06		
	21:56	42	20:53 (2.1.)	20:47	22	20:03 (2.2.)	19:25			17:07		16:06			15:56		
26	05:19		20:11 (2.1.)	06:20		19:41 (2.2.)	07:22			07:25		08:30			09:06		
	21:55	42	20:53 (2.1.)	20:45	23	20:04 (2.2.)	19:22			17:04		16:05			15:56		
27	05:21		20:11 (2.1.)	06:22		19:40 (2.2.)	07:24			07:27		08:32			09:06		
	21:53	41	20:52 (2.1.)	20:42	24	20:04 (2.2.)	19:19			17:02		16:04			15:57		
28	05:23		20:11 (2.1.)	06:24		19:40 (2.2.)	07:26			07:29		08:34			09:06		
	21:51	41	20:52 (2.1.)	20:39	24	20:04 (2.2.)	19:16			17:00		16:03			15:58		
29	05:24		20:12 (2.1.)	06:26		19:40 (2.2.)	07:28			07:31		08:36			09:06		
	21:49	40	20:52 (2.1.)	20:37	23	20:03 (2.2.)	19:14			16:57		16:01			15:59		
30	05:26		20:12 (2.1.)	06:28		19:40 (2.2.)	07:30			07:33		08:38			09:06		
	21:47	39	20:51 (2.1.)	20:34	23	20:03 (2.2.)	19:11			16:55		16:00			16:00		
31	05:28		20:12 (2.1.)	06:30		19:40 (2.2.)				07:35					09:06		
	21:45	39	20:51 (2.1.)	20:32	21	20:01 (2.2.)				16:53					16:01		
Potential sun hours	530			470			385			324		247			216		
Total, worst case		1213			544			51									
Sun reduction		0.57			0.52			0.46									
Oper. time red.		0.99			0.99			0.99									
Wind dir. red.		0.63			0.63			0.64									
Total reduction		0.35			0.32			0.29									
Total, real		430			176			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:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Sirsninas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (45)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:07	08:30	07:26	07:04	05:47	04:50
	16:02	17:00	18:02	20:08	21:11	22:08
2	09:06	08:28	07:23	07:50 (1.4.)	07:01	05:45
	16:04	17:02	18:05	7 07:57 (1.4.)	20:10	21:13
3	09:06	08:26	07:21	07:47 (1.4.)	06:58	05:42
	16:05	17:04	18:07	13 08:00 (1.4.)	20:12	21:15
4	09:06	08:24	07:18	07:44 (1.4.)	06:56	05:40
	16:06	17:06	18:09	17 08:01 (1.4.)	20:14	21:17
5	09:05	08:22	07:16	07:43 (1.4.)	06:53	05:38
	16:08	17:09	18:11	20 08:03 (1.4.)	20:17	21:19
6	09:05	08:20	07:13	07:41 (1.4.)	06:50	05:36
	16:09	17:11	18:13	23 08:04 (1.4.)	20:19	21:21
7	09:04	08:18	07:10	07:40 (1.4.)	06:48	05:33
	16:11	17:13	18:15	24 08:04 (1.4.)	20:21	21:23
8	09:03	08:16	07:08	07:40 (1.4.)	06:45	05:31
	16:12	17:16	18:18	25 08:05 (1.4.)	20:23	21:25
9	09:03	08:14	07:05	07:39 (1.4.)	06:42	05:29
	16:14	17:18	18:20	25 08:04 (1.4.)	20:25	21:27
10	09:02	08:12	07:03	07:38 (1.4.)	06:40	05:27
	16:15	17:20	18:22	26 08:04 (1.4.)	20:27	9 07:05 (1.3.)
11	09:01	08:09	07:00	07:38 (1.4.)	06:37	07:03 (1.3.)
	16:17	17:22	18:24	25 08:03 (1.4.)	20:29	14 07:17 (1.3.)
12	09:00	08:07	06:57	07:39 (1.4.)	06:34	07:00 (1.3.)
	16:19	17:25	18:26	24 08:03 (1.4.)	20:31	18 07:18 (1.3.)
13	08:59	08:05	06:55	07:39 (1.4.)	06:32	06:58 (1.3.)
	16:21	17:27	18:28	23 08:02 (1.4.)	20:33	21 07:19 (1.3.)
14	08:58	08:03	06:52	07:39 (1.4.)	06:29	06:56 (1.3.)
	16:22	17:29	18:30	22 08:01 (1.4.)	20:35	23 07:19 (1.3.)
15	08:57	08:00	06:49	07:40 (1.4.)	06:27	06:56 (1.3.)
	16:24	17:31	18:33	20 08:00 (1.4.)	20:37	24 07:20 (1.3.)
16	08:56	07:58	06:47	07:41 (1.4.)	06:24	06:55 (1.3.)
	16:26	17:34	18:35	17 07:58 (1.4.)	20:40	24 07:19 (1.3.)
17	08:54	07:56	06:44	07:43 (1.4.)	06:21	06:55 (1.3.)
	16:28	17:36	18:37	12 07:55 (1.4.)	20:42	25 07:20 (1.3.)
18	08:53	07:53	06:41	06:19	06:54 (1.3.)	05:11
	16:30	17:38	18:39	20:44	25 07:19 (1.3.)	21:45
19	08:52	07:51	06:39	06:16	06:55 (1.3.)	05:09
	16:32	17:40	18:41	20:46	24 07:19 (1.3.)	21:47
20	08:50	07:48	06:36	06:14	06:54 (1.3.)	05:08
	16:34	17:42	18:43	20:48	24 07:18 (1.3.)	21:49
21	08:49	07:46	06:33	06:11	06:55 (1.3.)	05:06
	16:36	17:45	18:45	20:50	22 07:17 (1.3.)	21:50
22	08:47	07:43	06:30	06:09	06:55 (1.3.)	05:04
	16:38	17:47	18:47	20:52	21 07:16 (1.3.)	21:52
23	08:46	07:41	06:28	06:06	06:56 (1.3.)	05:03
	16:40	17:49	18:49	20:54	19 07:15 (1.3.)	21:54
24	08:44	07:39	06:25	06:04	06:57 (1.3.)	05:01
	16:42	17:51	18:51	20:56	17 07:14 (1.3.)	21:56
25	08:43	07:36	06:22	06:01	06:58 (1.3.)	04:59
	16:44	17:54	18:54	20:58	13 07:11 (1.3.)	21:57
26	08:41	07:34	06:20	05:59	07:01 (1.3.)	04:58
	16:47	17:56	18:56	21:00	7 07:08 (1.3.)	21:59
27	08:39	07:31	06:17	05:57	04:57	04:41
	16:49	17:58	18:58	21:03	22:01	22:26
28	08:38	07:28	06:14	05:54	04:55	04:42
	16:51	18:00	19:00	21:05	22:02	22:26
29	08:36		07:12	05:52	04:54	04:43
	16:53		20:02	21:07	22:04	22:26
30	08:34		07:09	05:49	04:52	04:43
	16:55		20:04	21:09	22:05	22:25
31	08:32		07:06		04:51	
	16:58		20:06		22:07	
Potential sun hours	235	266	366	426	508	529
Total, worst case			323	330		
Sun reduction			0.40	0.57		
Oper. time red.			0.99	0.99		
Wind dir. red.			0.63	0.66		
Total reduction			0.25	0.37		
Total, real			80	123		

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Sirsninas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (45)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44 22:25	05:30 21:43	06:32 20:29	07:02 (1.3.) 19:09	07:38 16:51	08:40 15:59
2	04:45 22:24	05:32 21:41	06:34 20:27	07:04 (1.3.) 19:06	07:40 16:48	08:42 15:58
3	04:46 22:24	05:34 21:39	06:36 20:24	07:06 19:03	07:42 16:46	08:43 15:57
4	04:47 22:23	05:36 21:37	06:38 20:21	07:08 19:01	07:44 16:44	08:45 15:57
5	04:48 22:23	05:38 21:35	06:40 20:19	07:10 18:58	07:46 16:42	08:47 15:56
6	04:49 22:22	05:40 21:33	06:42 20:16	07:12 18:55	07:48 16:40	08:48 15:55
7	04:50 22:21	05:42 21:31	06:44 20:13	07:14 18:53	07:50 16:38	08:50 15:55
8	04:51 22:20	05:44 21:28	06:46 20:11	07:16 18:50	07:52 16:36	08:51 15:54
9	04:52 22:19	05:46 21:26	06:48 20:08	07:18 18:47	07:54 16:34	08:52 15:54
10	04:54 22:18	05:48 21:24	06:50 20:05	07:20 18:45	07:56 16:32	08:54 15:53
11	04:55 22:17	05:50 21:22	06:52 20:03	07:22 18:42	07:58 16:30	08:55 15:53
12	04:56 22:16	05:52 21:19	06:54 20:00	07:24 18:39	08:00 16:28	08:56 15:52
13	04:58 22:15	05:54 21:17	06:56 19:57	07:26 18:37	08:02 16:26	08:57 15:52
14	04:59 22:14	05:56 21:15	06:58 19:54	07:28 18:34	08:04 16:24	08:58 15:52
15	05:01 22:12	05:58 21:12	07:00 19:52	07:30 18:32	08:06 16:22	08:59 15:52
16	05:02 22:11	06:00 21:10	07:02 19:49	07:32 18:30	08:08 16:20	09:00 15:52
17	05:04 22:10	06:02 21:07	07:04 19:46	07:34 18:27	08:10 16:19	09:01 15:52
18	05:05 22:08	06:04 21:05	07:06 19:44	07:36 18:24	08:12 16:17	09:02 15:52
19	05:07 22:07	06:06 21:02	07:08 19:41	07:38 18:22	08:14 16:15	09:03 15:53
20	05:08 22:05	06:08 21:00	07:10 19:38	07:40 18:19	08:16 16:14	09:04 15:53
21	05:10 22:04	06:10 20:57	07:12 19:36	07:42 18:17	08:18 16:12	09:04 15:53
22	05:12 22:02	06:12 20:55	07:14 19:33	07:44 18:14	08:20 16:11	09:05 15:54
23	05:14 22:00	06:14 20:52	07:16 19:30	07:46 18:12	08:22 16:09	09:05 15:54
24	05:15 21:59	06:16 20:50	07:18 19:27	07:48 18:09	08:24 16:08	09:06 15:55
25	05:17 21:57	06:18 20:47	07:20 19:25	07:50 18:07	08:26 16:06	09:06 15:55
26	05:19 21:55	06:20 20:45	07:22 19:22	07:52 18:04	08:28 16:05	09:06 15:56
27	05:21 21:53	06:22 20:42	07:24 19:19	07:54 18:02	08:30 16:04	09:07 15:57
28	05:23 21:51	06:24 20:40	07:26 19:17	07:56 18:00	08:32 16:03	09:07 15:58
29	05:24 21:49	06:26 20:37	07:28 19:14	07:58 17:57	08:34 16:01	09:07 15:59
30	05:26 21:47	06:28 20:34	07:30 19:11	08:00 17:55	08:36 16:00	09:07 16:00
31	05:28 21:45	06:30 20:32	07:32 19:09	08:02 17:53	08:38 16:00	09:07 16:01
Potential sun hours	530	470	385	323	247	215
Total, worst case		310	111	239		
Sun reduction		0.52	0.46	0.31		
Oper. time red.		0.99	0.99	0.99		
Wind dir. red.		0.66	0.64	0.63		
Total reduction		0.34	0.29	0.19		
Total, real		105	32	46		

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)

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Skudrinas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (33)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

		January	February	March	April	May	June	July	August	September	October	November	December			
1	09:06	08:30	07:26	07:03	05:47		04:50	04:44	21:28 (4.7 A)	05:30	20:43 (4.4 A)	06:32	07:32	07:38	08:40	
	16:02	17:00	18:02	20:08	21:11		22:08	22:24	13 21:41 (4.7 A)	21:43	22 21:05 (4.4 A)	20:29	19:08	16:50	15:59	
2	09:06	08:28	07:23	07:01	05:45		04:49	04:45	21:29 (4.7 A)	05:32	20:43 (4.4 A)	06:34	07:34	07:40	08:41	
	16:04	17:02	18:04	20:10	21:13		22:09	22:24	11 21:40 (4.7 A)	21:41	22 21:05 (4.4 A)	20:26	19:06	16:48	15:58	
3	09:06	08:26	07:21	06:58	05:42		04:48	04:46	21:30 (4.7 A)	05:34	20:42 (4.4 A)	06:36	07:36	07:42	08:43	
	16:05	17:04	18:07	20:12	21:15	3	20:39 (4.4 A)	22:23	8 21:38 (4.7 A)	21:39	22 21:04 (4.4 A)	20:24	19:03	16:46	15:57	
4	09:05	08:24	07:18	06:55	05:40		04:47	04:47	21:33 (4.7 A)	05:36	20:43 (4.4 A)	06:38	07:38	07:44	08:45	
	16:06	17:06	18:09	20:14	21:17	7	20:44 (4.4 A)	22:23	3 21:36 (4.7 A)	21:37	20 21:03 (4.4 A)	20:21	19:00	16:44	15:57	
5	09:05	08:22	07:15	06:53	05:38		04:46	04:48		05:38	20:43 (4.4 A)	06:40	07:40	07:46	08:46	
	16:06	17:09	18:11	20:16	21:19	11	20:46 (4.4 A)	22:23		21:35	18 21:01 (4.4 A)	20:18	18:58	16:42	15:54	
6	09:04	08:20	07:13	06:50	05:36		04:45	04:49		05:40	20:44 (4.4 A)	06:42	07:42	07:49	08:48	
	16:09	17:11	18:13	20:18	21:21	13	20:47 (4.4 A)	22:21		21:33	15 20:59 (4.4 A)	20:16	18:55	16:40	15:55	
7	09:04	08:18	07:10	06:47	05:33		04:44	04:50		05:42	20:45 (4.4 A)	06:44	07:44	07:51	08:49	
	16:11	17:13	18:15	20:20	21:23	15	20:49 (4.4 A)	22:21		21:30	12 20:57 (4.4 A)	20:13	18:52	16:37	15:55	
8	09:03	08:16	07:08	06:45	05:31		04:43	04:51		05:44	20:45 (4.4 A)	06:46	07:46	07:53	08:51	
	16:12	17:15	18:17	20:23	21:25	18	20:51 (4.4 A)	22:17		22:20	21:28	9 20:54 (4.4 A)	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29		04:43	04:52	21:27 (4.7 A)	04:52	05:46	20:47 (4.4 A)	06:48	07:49	07:55	08:52
	16:14	17:18	18:20	20:25	21:27	21	20:53 (4.4 A)	22:18	6 21:33 (4.7 A)	22:19	21:26	5 20:52 (4.4 A)	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:40	05:27		04:42	04:51	21:25 (4.7 A)	04:54	05:48	20:49 (4.4 A)	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22	20:54 (4.4 A)	22:19	9 21:34 (4.7 A)	22:18	21:24	1 20:50 (4.4 A)	20:05	18:44	16:31	15:53
11	09:00	08:09	07:00	06:37	05:25		04:41	04:55		05:50	20:50	06:52	07:53	07:59	08:55	
	16:17	17:22	18:24	20:29	21:31	22	20:55 (4.4 A)	22:20	12 21:36 (4.7 A)	22:17	21:21		20:02	18:42	16:29	15:53
12	09:00	08:07	06:57	06:34	05:23		04:41	04:56		05:52	20:54	06:54	07:55	08:02	08:56	
	16:19	17:24	18:26	20:31	21:33	21	20:54 (4.4 A)	22:13	13 21:36 (4.7 A)	22:16	21:19		20:02	18:38	16:28	15:54
13	08:59	08:05	06:54	06:32	05:21		04:40	04:58		05:54	20:54	06:56	07:57	08:04	08:57	
	16:21	17:27	18:28	20:33	21:35	22	20:54 (4.4 A)	22:21	15 21:38 (4.7 A)	22:14	21:17		19:57	18:37	16:26	15:52
14	08:58	08:02	06:52	06:29	05:19		04:40	04:59		05:56	20:58	06:58	07:59	08:06	08:58	
	16:22	17:29	18:30	20:35	21:37	22	20:54 (4.4 A)	22:22	16 21:39 (4.7 A)	22:13	21:14		19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:26	05:17		04:40	05:00		05:58	20:59	07:00	08:01	08:08	08:59	
	16:24	17:31	18:32	20:37	21:39	21	20:53 (4.4 A)	22:23	16 21:39 (4.7 A)	22:12	21:12		19:52	18:32	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15		04:40	05:02		06:00	20:59	07:02	08:03	08:10	09:00	
	16:26	17:33	18:34	20:39	21:41	20	20:54 (4.4 A)	22:23	17 21:40 (4.7 A)	22:11	21:09		19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13		04:39	05:04		06:02	20:59	07:04	08:05	08:12	09:01	
	16:28	17:36	18:37	20:41	21:43	19	20:53 (4.4 A)	22:24	18 21:41 (4.7 A)	22:09	21:07		19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11		04:39	05:05		06:04	20:59	07:06	08:07	08:14	09:02	
	16:30	17:38	18:39	20:43	21:45	18	20:52 (4.4 A)	22:24	18 21:41 (4.7 A)	22:08	21:05		19:43	18:24	16:17	15:52
19	08:51	07:50	06:38	06:16	05:09		04:39	05:07		06:06	20:59	07:08	08:10	08:16	09:03	
	16:32	17:40	18:41	20:46	21:46	17	20:52 (4.4 A)	22:24	18 21:42 (4.7 A)	22:09	21:02		19:42	18:22	16:15	15:52
20	08:50	07:48	06:36	06:14	05:08		04:39	05:08		06:08	20:59	07:10	08:12	08:18	09:03	
	16:34	17:42	18:43	20:48	21:48	14	20:50 (4.4 A)	22:25	18 21:41 (4.7 A)	22:05	21:00		19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:11	05:06		04:39	05:10		06:10	20:59	07:12	08:14	08:21	09:04	
	16:36	17:45	18:45	20:50	21:50	12	20:50 (4.4 A)	22:25	19 21:42 (4.7 A)	22:03	7 20:57 (4.4 A)	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04		04:40	05:12		06:12	20:59	07:14	08:16	08:23	09:04	
	16:38	17:47	18:47	20:52	21:52	9	20:48 (4.4 A)	22:26	19 21:42 (4.7 A)	22:02	11 20:59 (4.4 A)	20:55	19:33	18:14	16:10	15:54
23	08:46	07:41	06:28	06:06	05:03		04:40	05:13		06:14	20:59	07:16	08:18	08:25	09:05	
	16:40	17:49	18:49	20:54	21:54	4	20:46 (4.4 A)	22:26	18 21:41 (4.7 A)	22:00	14 21:01 (4.4 A)	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01		04:40	05:15		06:16	20:59	07:18	08:20	08:27	09:05	
	16:42	17:51	18:51	20:56	21:55		22:26	21:58	15 21:01 (4.4 A)	20:50		19:27	18:09	16:08	15:55	
25	08:42	07:36	06:22	06:01	04:59		04:40	05:17		06:18	20:59	07:20	07:22	08:28	09:06	
	16:44	17:53	18:53	20:58	21:56		22:26	21:56	17 21:42 (4.7 A)	20:47		19:24	17:07	16:06	15:55	
26	08:41	07:33	06:20	06:00	04:58		04:39	05:18		06:20	20:59	07:22	17:05	16:05	15:55	
	16:47	17:56	18:55	21:00	21:59		22:26	21:58	18 21:42 (4.7 A)	20:45		19:22	17:04	16:05	15:56	
27	08:39	07:31	06:17	05:56	04:56		04:41	05:21		06:22	20:59	07:24	07:27	08:32	09:06	
	16:49	17:58	18:57	21:02	22:00		22:26	21:53	19 21:03 (4.4 A)	20:42		19:19	17:02	16:04	15:57	
28	08:37	07:28	06:14	05:54	04:55		04:42	05:22		06:24	20:59	07:26	07:29	08:34	09:06	
	16:51	18:00	19:00	21:04	22:02		22:25	21:51	20 21:04 (4.4 A)	20:39		19:16	17:00	16:02	15:58	
29	08:35	07:11	05:52	04:54			04:43	05:24		06:26	20:59	07:28	07:31	08:36	09:06	
	16:53	18:02	20:01	21:06	22:04		22:25	21:45	21 21:05 (4.4 A)	20:37		19:14	16:57	16:01	15:59	
30	08:34	07:09	05:49	04:52			04:43	05:26		06:28	20:59	07:30	07:33	08:38	09:06	
	16:55	18:04	20:04	21:08	22:05		22:25	21:47	21 21:04 (4.4 A)	20:34		19:11	16:55	16:00	16:00	
31	08:32	07:06		04:51				05:28		06:30	20:59	07:35			09:06	
	16:57	20:06		22:07				21:45	21 21:04 (4.4 A)	20:32		16:53			16:01	
Potential sun hours		235	266	366	426	508	529	530		470		385	324	247	216	
Total, worst case						331	347	219		146						
Sun reduction						0.59	0.62	0.57		0.52						
Oper. time red.						0.99	0.99	0.99		0.99						
Wind dir. red.						0.62	0.60	0.62		0.62						
Total reduction						0.36	0.37	0.35		0.32						
Total, real						119	127	77		46						

Table layout: For each day in each month the following 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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Skutini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (46)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

		January		February		March		April		May		June		July		August		September		October		November		December	
1	09:07		10:27 (4.2)	08:30		10:42 (4.2)	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38		08:40						10:12 (4.2)		
	16:03	39	11:06 (4.2)	17:00	30	11:12 (4.2)	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:09	16:51		15:59	43	10:55 (4.2)						
2	09:06		10:28 (4.2)	08:28		10:44 (4.2)	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40		08:42						10:13 (4.2)		
	16:04	39	11:07 (4.2)	17:02	27	11:11 (4.2)	18:05	20:10	21:13	22:10	22:24	21:41	20:27	19:06	16:48		15:58	42	10:55 (4.2)						
3	09:06		10:28 (4.2)	08:26		10:46 (4.2)	07:21	06:58	05:43	04:48	04:46	05:34	06:36	07:36	07:42		08:43						10:13 (4.2)		
	16:05	40	11:08 (4.2)	17:04	23	11:09 (4.2)	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46		15:58	42	10:55 (4.2)						
4	09:06		10:28 (4.2)	08:24		10:47 (4.2)	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:39	07:45		08:45						10:13 (4.2)		
	16:06	40	11:08 (4.2)	17:07	19	11:06 (4.2)	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:01	16:44		15:57	42	10:55 (4.2)						
5	09:05		10:29 (4.2)	08:22		10:51 (4.2)	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:41	07:47		08:47						10:14 (4.2)		
	16:08	40	11:09 (4.2)	17:09	12	11:03 (4.2)	18:11	20:17	21:19	22:14	22:23	21:35	20:19	18:58	16:42		15:56	41	10:55 (4.2)						
6	09:05		10:29 (4.2)	08:20		10:50 (4.2)	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49		08:48						10:15 (4.2)		
	16:09	41	11:10 (4.2)	17:11		11:13 (4.2)	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:40		15:55	41	10:56 (4.2)						
7	09:04		10:29 (4.2)	08:18		10:52 (4.2)	07:10	06:48	05:34	04:44	04:50	05:42	06:44	07:45	07:51		08:50						10:15 (4.2)		
	16:11	41	11:10 (4.2)	17:13		11:15 (4.2)	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:53	16:38		15:55	40	10:55 (4.2)						
8	09:03		10:29 (4.2)	08:16		10:53 (4.2)	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53		08:51						10:16 (4.2)		
	16:12	42	11:11 (4.2)	17:16		11:18 (4.2)	18:18	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:36		15:54	40	10:56 (4.2)						
9	09:03		10:30 (4.2)	08:14		10:54 (4.2)	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:49	07:55		08:52						10:16 (4.2)		
	16:14	41	11:11 (4.2)	17:18		11:20 (4.2)	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34		15:54	40	10:56 (4.2)						
10	09:02		10:30 (4.2)	08:12		10:55 (4.2)	07:03	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:58		08:54						10:17 (4.2)		
	16:16	42	11:12 (4.2)	17:20		11:22 (4.2)	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:32		15:53	40	10:57 (4.2)						
11	09:01		10:30 (4.2)	08:09		10:56 (4.2)	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	08:00		08:55						10:18 (4.2)		
	16:17	43	11:13 (4.2)	17:22		11:24 (4.2)	18:24	20:29	21:31	22:20	22:17	21:22	20:03	18:42	16:30		15:53	38	10:56 (4.2)						
12	09:00		10:30 (4.2)	08:07		10:57 (4.2)	06:57	06:35	05:23	04:41	04:56	05:52	06:54	07:55	08:02		08:56						10:19 (4.2)		
	16:19	43	11:13 (4.2)	17:25		11:26 (4.2)	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:40	16:28		15:53	38	10:57 (4.2)						
13	08:59		10:31 (4.2)	08:05		10:58 (4.2)	06:55	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04		08:57						10:20 (4.2)		
	16:21	43	11:13 (4.2)	17:27		11:28 (4.2)	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26		15:52	38	10:57 (4.2)						
14	08:58		10:31 (4.2)	08:03		10:59 (4.2)	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06		08:58						10:20 (4.2)		
	16:23	43	11:14 (4.2)	17:29		11:30 (4.2)	18:30	20:35	21:37	22:23	22:14	21:15	19:55	18:34	16:24		15:52	38	10:58 (4.2)						
15	08:57		10:31 (4.2)	08:00		11:00 (4.2)	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:01	08:08		08:59						10:20 (4.2)		
	16:24	43	11:14 (4.2)	17:31		11:33 (4.2)	18:33	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22		15:52	39	11:09 (4.3)						
16	08:56		10:31 (4.2)	07:58		11:04 (4.2)	06:47	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:11		09:00						10:21 (4.2)		
	16:26	44	11:15 (4.2)	17:34		11:35 (4.2)	18:35	20:40	21:41	22:24	22:11	21:10	19:49	18:29	16:20		15:52	42	11:11 (4.3)						
17	08:54		10:31 (4.2)	07:56		11:05 (4.2)	06:44	06:22	05:13	04:40	05:04	06:02	07:04	08:06	08:13		09:01						10:21 (4.2)		
	16:28	44	11:15 (4.2)	17:36		11:36 (4.2)	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:27	16:19		15:52	45	11:13 (4.3)						
18	08:53		10:32 (4.2)	07:53		11:06 (4.2)	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15		09:02						10:22 (4.2)		
	16:30	44	11:16 (4.2)	17:38		11:37 (4.2)	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17		15:52	45	11:14 (4.3)						
19	08:52		10:32 (4.2)	07:51		11:07 (4.2)	06:39	06:16	05:10	04:39	05:07	06:06	07:08	08:10	08:17		09:03						10:23 (4.2)		
	16:32	44	11:16 (4.2)	17:40		11:38 (4.2)	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:22	16:15		15:53	45	11:15 (4.3)						
20	08:50		10:32 (4.2)	07:48		11:08 (4.2)	06:36	06:14	05:08	04:39	05:09	06:08	07:10	08:12	08:19		09:04						10:23 (4.2)		
	16:34	43	11:15 (4.2)	17:43		11:39 (4.2)	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:14		15:53	46	11:15 (4.3)						
21	08:49		10:33 (4.2)	07:46		11:09 (4.2)	06:33	06:11	05:06	04:40	05:10	06:10	07:12	08:14	08:21		09:04						10:24 (4.2)		
	16:36	43	11:16 (4.2)	17:45		11:40 (4.2)	18:45	20:50	21:50	22:26	22:04	20:58	19:36	18:17	16:12		15:53	45	11:16 (4.3)						
22	08:48		10:34 (4.2)	07:44		11:10 (4.2)	06:31	06:09	05:04	04:40	05:12	06:12	07:14	08:16	08:23		09:05						10:24 (4.2)		
	16:38	42	11:16 (4.2)	17:47		11:12 (4.2)	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:11		15:54	45	11:16 (4.3)						
23	08:46		10:34 (4.2)	07:41		11:13 (4.2)	06:28	06:06	05:03	04:40	05:14	06:14	07:16	08:18	08:25		09:05						10:25 (4.2)		
	16:40	42	11:16 (4.2)	17:49		11:14 (4.2)	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09		15:54	45	11:17 (4.3)						
24	08:44		10:35 (4.2)	07:39		11:15 (4.2)	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27		09:06						10:25 (4.2)		
	16:42	41	11:16 (4.2)	17:51		11:16 (4.2)	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:08		15:55	46	11:17 (4.3)						
25	08:43		10:35 (4.2)	07:36		11:17 (4.2)	06:22	06:01	05:00	04:41	05:17	06:18	07:20	08:23	08:29		09:06						10:25 (4.2)		
	16:45	41	11:16 (4.2)	17:54		11:18 (4.2)	18:54	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:06		15:56	44	11:17 (4.3)						
26	08:41		10:36 (4.2)	07:34		11:19 (4.2)	06:20	05:59	04:58	04:41	05:19	06:20	07:22	08:25	08:31		09:06						10:25 (4.2)		
	16:47	39	11:15 (4.2)	17:56		11:20 (4.2)	18:56	21:01	21:59	22:26	21:55	20:45	19:22	17:05	16:05		15:54	44	11:17 (4.3)						
27	08:39		10:36 (4.2)	07:31		11:21 (4.2)	06:17	05:57	04:57	04:42	05:21	06:22	07:24	08:27	08:33		09:07						10:26 (4.2)		
	16:49	39	11:15 (4.2)	17:58		11:22 (4.2)	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04		15:57	43	11:17 (4.3)						
28	08:38		10:37 (4.2)	07:29		11:23 (4.2)	06:14	05:54	04:55	04:42	05:23	06:24	07:26	08:29	08:35		09:07						10:26 (4.2)		
	16:51	38	11:15 (4.2)	18:00		11:24 (4.2)	19:00	21:05	22:02	22:26	21:51														

Project: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Slakteri - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (32)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:02	08:30 17:00	07:26 18:02	17:22 (2.1.) 17:33 (2.1.)	07:03 20:08	04:50 22:08
2	09:06 16:04	08:28 17:02	07:23 18:04	17:20 (2.1.) 17:35 (2.1.)	07:01 20:10	22:08 21:07 (4.4.A)
3	09:05 16:05	08:26 17:04	07:21 18:07	17:20 (2.1.) 17:38 (2.1.)	06:58 20:12	22:09 21:08 (4.4.A)
4	09:05 16:06	08:24 17:06	07:18 18:09	17:19 (2.1.) 17:40 (2.1.)	06:55 20:14	22:11 21:08 (4.4.A)
5	09:05 16:08	08:22 17:09	07:15 18:11	17:19 (2.1.) 17:39 (2.1.)	06:53 20:16	22:12 21:08 (4.4.A)
6	09:04 16:09	08:20 17:11	07:13 18:13	17:19 (2.1.) 17:40 (2.1.)	06:50 20:18	22:13 21:07 (4.4.A)
7	09:04 16:11	08:18 17:13	07:10 18:15	17:19 (2.1.) 17:39 (2.1.)	06:47 20:20	22:14 21:08 (4.4.A)
8	09:03 16:12	08:16 17:15	07:08 18:17	17:19 (2.1.) 17:37 (2.1.)	06:45 20:23	22:16 21:08 (4.4.A)
9	09:02 16:14	08:13 17:18	07:05 18:20	17:21 (2.1.) 17:37 (2.1.)	06:42 20:25	22:17 21:09 (4.4.A)
10	09:01 16:15	08:11 17:20	07:02 18:22	17:22 (2.1.) 17:35 (2.1.)	06:40 20:27	22:18 21:09 (4.4.A)
11	09:00 16:17	08:09 17:22	07:00 18:24	17:24 (2.1.) 17:31 (2.1.)	06:37 20:29	22:19 21:10 (4.4.A)
12	09:00 16:19	08:07 17:24	06:57 18:26	20:29 20:31	21:31 21:33	22:20 21:30 (4.4.A)
13	08:59 16:21	08:05 17:27	06:54 18:28	20:32 20:33	21:32 21:35	22:21 21:30 (4.4.A)
14	08:57 16:22	08:02 17:29	06:52 18:30	20:29 20:35	21:31 21:37	22:22 21:30 (4.4.A)
15	08:56 16:24	08:00 17:31	06:49 18:32	20:26 20:37	21:30 21:39	22:23 21:30 (4.4.A)
16	08:55 16:26	07:58 17:33	06:46 18:34	20:24 20:39	21:30 21:41	22:24 21:30 (4.4.A)
17	08:54 16:28	07:55 17:36	06:44 18:37	20:21 20:41	21:30 21:43	22:25 21:30 (4.4.A)
18	08:53 16:30	07:53 17:38	06:41 18:39	20:19 20:43	21:30 21:45	22:26 21:31 (4.4.A)
19	08:51 16:32	07:50 17:40	06:38 18:41	20:16 20:46	21:30 21:46	22:27 21:31 (4.4.A)
20	08:50 16:34	07:48 17:42	06:36 18:43	20:14 20:48	21:30 21:48	22:28 21:31 (4.4.A)
21	08:49 16:36	07:46 17:45	06:33 18:45	20:11 20:50	21:30 21:50	22:29 21:31 (4.4.A)
22	08:47 16:38	07:43 17:47	06:30 18:47	20:09 20:52	21:30 21:52	22:30 21:32 (4.4.A)
23	08:46 16:40	07:41 17:49	06:28 18:49	20:06 20:54	21:30 21:54	22:31 21:33 (4.4.A)
24	08:44 16:42	07:38 17:51	06:25 18:51	20:04 20:56	21:30 21:55	22:32 21:34 (4.4.A)
25	08:42 16:44	07:36 17:53	06:22 18:53	20:01 20:58	21:30 21:57	22:33 21:35 (4.4.A)
26	08:41 16:47	07:33 17:56	06:20 18:55	20:00 21:00	21:30 21:59	22:34 21:36 (4.4.A)
27	08:39 16:49	07:31 17:58	17:25 (2.1.) 18:57	06:17 21:02	04:57 22:00	22:35 21:37 (4.4.A)
28	08:37 16:51	07:28 18:00	17:24 (2.1.) 17:31 (2.1.)	06:14 19:00	04:55 21:04	22:36 21:38 (4.4.A)
29	08:35 16:53			07:11 20:02	04:54 22:03	22:37 21:39 (4.4.A)
30	08:34 16:55			07:09 20:04	04:52 22:05	22:38 21:40 (4.4.A)
31	08:32 16:57			07:06 20:06	04:51 22:07	22:39 21:41 (4.4.A)
Potential sun hours	235	266	366	426	508	529
Total, worst case		10	180		150	593
Sun reduction		0.32	0.40		0.59	0.62
Oper. time red.		0.99	0.99		0.99	0.99
Wind dir. red.		0.68	0.68		0.60	0.60
Total reduction		0.22	0.27		0.35	0.37
Total, real		2	49		52	218

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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Slakteri - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (32)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44 22:24 20	21:14 (4.4.A) 21:34 (4.4.A) 21:43	05:30 21:43 21:43	06:32 20:29 19:08		07:38 16:50 15:59
2	04:45 22:24 20	21:14 (4.4.A) 21:34 (4.4.A) 21:41	05:32 21:41 20:26	06:34 20:26 19:06		07:40 16:48 15:58
3	04:46 22:23 21	21:13 (4.4.A) 21:34 (4.4.A) 21:39	05:34 21:39 20:24	06:36 20:24 19:03	11	18:01 (2.1.) 18:12 (2.1.) 16:46
4	04:47 22:23 20	21:14 (4.4.A) 21:34 (4.4.A) 21:37	05:36 21:37 20:21	06:38 20:21 19:00	14	17:59 (2.1.) 18:13 (2.1.) 16:44
5	04:48 22:22 21	21:14 (4.4.A) 21:35 (4.4.A) 21:35	05:38 21:35 20:18	06:40 20:18 18:58	17	17:57 (2.1.) 18:14 (2.1.) 16:42
6	04:49 22:21 21	21:14 (4.4.A) 21:35 (4.4.A) 21:33	05:40 21:33 20:16	06:42 20:16 18:55	19	17:56 (2.1.) 18:15 (2.1.) 16:40
7	04:50 22:21 21	21:14 (4.4.A) 21:35 (4.4.A) 21:30	05:42 21:30 20:13	06:44 20:13 18:52	20	17:55 (2.1.) 18:15 (2.1.) 16:37
8	04:51 22:20 21	21:14 (4.4.A) 21:35 (4.4.A) 21:28	05:44 21:28 20:10	06:46 20:10 18:50	20	17:54 (2.1.) 18:14 (2.1.) 16:35
9	04:52 22:19 21	21:14 (4.4.A) 21:35 (4.4.A) 21:26	05:46 21:26 20:08	06:48 20:08 18:47	20	17:55 (2.1.) 18:15 (2.1.) 16:33
10	04:54 22:18 21	21:15 (4.4.A) 21:36 (4.4.A) 21:24	05:48 21:24 20:05	06:50 20:05 18:44	20	17:54 (2.1.) 18:14 (2.1.) 16:31
11	04:55 22:17 21	21:15 (4.4.A) 21:36 (4.4.A) 21:21	05:50 21:21 20:02	06:52 20:02 18:42	17	17:54 (2.1.) 18:11 (2.1.) 16:29
12	04:56 22:16 21	21:15 (4.4.A) 21:36 (4.4.A) 21:19	05:52 21:19 20:00	06:54 20:00 18:39	13	17:55 (2.1.) 18:08 (2.1.) 16:28
13	04:58 22:14 21	21:15 (4.4.A) 21:36 (4.4.A) 21:17	05:54 21:17 19:57	06:56 19:57 18:37	10	17:55 (2.1.) 18:05 (2.1.) 16:26
14	04:59 22:13 19	21:16 (4.4.A) 21:35 (4.4.A) 21:14	05:56 21:14 19:54	06:58 19:54 18:34	6	17:56 (2.1.) 18:02 (2.1.) 16:24
15	05:00 22:12 18	21:16 (4.4.A) 21:34 (4.4.A) 21:12	05:58 21:12 19:52	07:00 19:52 18:32		08:08 16:22 15:52
16	05:02 22:11 16	21:16 (4.4.A) 21:32 (4.4.A) 21:09	06:00 21:09 19:49	07:02 19:49 18:29		08:10 16:20 15:52
17	05:04 22:09 15	21:17 (4.4.A) 21:32 (4.4.A) 21:07	06:02 21:07 19:46	07:04 19:46 18:26		08:12 16:18 15:52
18	05:05 22:08 13	21:17 (4.4.A) 21:30 (4.4.A) 21:05	06:04 21:05 19:43	07:06 19:43 18:24		08:14 16:17 15:52
19	05:07 22:06 11	21:18 (4.4.A) 21:29 (4.4.A) 21:02	06:06 21:02 19:41	07:08 19:41 18:21		08:16 16:15 15:53
20	05:08 22:05 10	21:18 (4.4.A) 21:28 (4.4.A) 21:00	06:08 21:00 19:38	07:10 19:38 18:19		08:18 16:14 15:53
21	05:10 22:03 8	21:19 (4.4.A) 21:27 (4.4.A) 20:57	06:10 20:57 19:35	07:12 19:35 18:16		08:21 16:12 15:53
22	05:12 22:02 5	21:20 (4.4.A) 21:25 (4.4.A) 20:55	06:12 20:55 19:33	07:14 19:33 18:14		08:23 16:10 15:54
23	05:13 22:00 2	21:22 (4.4.A) 21:24 (4.4.A) 20:52	06:14 20:52 19:30	07:16 19:30 18:12		08:25 16:09 15:54
24	05:15 21:58 25		06:16 20:50 19:27	07:18 19:27 18:09		08:26 16:08 15:55
25	05:17 21:56 26		06:18 20:47 19:24	07:20 19:24 17:07		08:28 16:06 15:55
26	05:19 21:55 27		06:20 20:45 19:22	07:22 19:22 17:04		08:30 16:05 15:56
27	05:21 21:53 28		06:22 20:42 19:19	07:24 19:19 17:02		08:32 16:04 15:57
28	05:22 21:51 29		06:24 20:39 19:16	07:26 19:16 17:00		08:34 16:03 15:58
29	05:24 21:49 30		06:26 20:37 19:14	07:28 19:14 16:57		08:36 16:01 15:59
30	05:26 21:47 31		06:28 20:34 19:11	07:30 19:11 16:55		08:38 16:00 16:00
Potential sun hours	530		470	385	324	247
Total, worst case		387			187	216
Sun reduction		0.57			0.31	
Oper. time red.		0.99			0.99	
Wind dir. red.		0.60			0.68	
Total reduction		0.34			0.21	
Total, real		132			39	

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Smilgas - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (92)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:45	04:47	05:38	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:54	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:16	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:06	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:06
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Smiltnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (12)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:03	17:00	18:02	20:08	21:11	22:08	22:24	21:43	20:29	19:09	16:51	16:00
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:04	17:02	18:05	20:10	21:13	22:09	22:24	21:41	20:26	19:06	16:48	15:59
3	09:06	08:26	07:21	06:58	05:43	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:58
4	09:05	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:45
	16:07	17:07	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:01	16:44	15:57
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:47	08:46
	16:08	17:09	18:11	20:16	21:19	22:13	22:22	21:35	20:19	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:21	21:33	20:16	18:55	16:40	15:55
7	09:04	08:18	07:10	06:48	05:34	04:44	04:50	05:42	06:44	07:45	07:51	08:49
	16:11	17:13	18:15	20:21	21:23	22:16	22:21	21:30	20:13	18:53	16:38	15:55
8	09:03	08:16	07:08	06:45	05:31	04:44	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:16	18:18	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:36	15:54
9	09:02	08:14	07:05	06:42	05:29	04:43	04:53	05:46	06:48	07:49	07:55	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34	15:54
10	09:01	08:11	07:02	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:57	08:53
	16:16	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:32	15:53
11	09:01	08:09	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:30	15:53
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:28	15:53
13	08:59	08:05	06:55	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:21	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:23	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:01	08:08	08:59
	16:25	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:55	07:58	06:47	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:34	18:35	20:39	21:41	22:23	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:22	05:13	04:40	05:04	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:37	20:41	21:43	22:24	22:09	21:07	19:46	18:27	16:19	15:52
18	08:53	07:53	06:41	06:19	05:11	04:40	05:05	06:04	07:06	08:08	08:14	09:02
	16:30	17:38	18:39	20:44	21:45	22:24	22:08	21:05	19:44	18:24	16:17	15:53
19	08:52	07:51	06:39	06:16	05:10	04:40	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:46	22:25	22:06	21:02	19:41	18:22	16:15	15:53
20	08:50	07:48	06:36	06:14	05:08	04:40	05:09	06:08	07:10	08:12	08:19	09:03
	16:34	17:43	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:11	05:06	04:40	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:17	16:12	15:53
22	08:47	07:43	06:30	06:09	05:05	04:40	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:11	15:54
23	08:46	07:41	06:28	06:06	05:03	04:40	05:14	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:16	06:16	07:18	08:20	08:27	09:05
	16:43	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:08	15:55
25	08:42	07:36	06:22	06:02	05:00	04:41	05:17	06:18	07:20	07:23	08:29	09:06
	16:45	17:54	18:53	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:07	15:56
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:30	09:06
	16:47	17:56	18:56	21:00	21:59	22:26	21:55	20:45	19:22	17:05	16:05	15:56
27	08:39	07:31	06:17	05:57	04:57	04:42	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:58	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:23	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:40	19:17	17:00	16:03	15:58
29	08:36		07:12	05:52	04:54	04:43	05:25	06:26	07:28	07:31	08:36	09:06
	16:53		20:02	21:07	22:04	22:25	21:49	20:37	19:14	16:58	16:02	15:59
30	08:34		07:09	05:50	04:53	04:44	05:26	06:28	07:30	07:33	08:38	09:06
	16:56		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:01	16:00
31	08:32		07:06		04:52		05:28	06:30		07:36		09:06
	16:58		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Strautini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (30)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December	
1	09:06 16:02	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:10	04:50 22:08	04:44 22:24	21 21:19 (1.6)	05:30 21:43	17 21:09 (4.7 C)	06:32 20:29	07:32 19:08	08:39 16:50
2	09:06 16:03	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	20 21:39 (1.6)	05:32 21:41	14 21:06 (4.7 C)	06:34 20:26	07:34 19:06	08:40 16:48
3	09:05 16:05	08:26 17:04	07:20 18:06	06:58 20:12	05:42 21:15	04:48 22:11	04:46 22:23	19 21:39 (1.6)	05:34 21:39	11 21:04 (4.7 C)	06:36 20:24	07:36 19:03	08:43 16:46
4	09:05 16:06	08:24 17:06	07:18 18:09	06:55 20:14	05:40 21:17	04:47 22:12	21:21 (1.6) 21:27 (1.6)	04:47 21:38 (1.6)	05:36 21:37	9 21:03 (4.7 C)	06:38 20:21	07:38 19:00	08:44 16:44
5	09:05 16:07	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13	21:19 (1.6) 21:29 (1.6)	04:48 21:38 (1.6)	05:38 21:35	6 21:01 (4.7 C)	06:40 20:18	07:40 18:58	08:46 16:42
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:35 21:21	04:45 22:14	21:17 (1.6) 21:30 (1.6)	04:49 21:37 (1.6)	05:40 21:32	2 20:59 (4.7 C)	06:42 20:16	07:42 18:55	08:48 16:39
7	09:03 16:10	08:18 17:13	07:10 18:15	06:47 20:20	05:33 21:23	04:44 22:16	21:17 (1.6) 21:32 (1.6)	04:50 21:36 (1.6)	05:42 21:30	11 21:36 (1.6)	06:44 20:13	07:44 18:52	08:49 16:37
8	09:03 16:12	08:16 17:15	07:07 18:17	06:45 20:22	05:31 21:25	04:43 22:17	21:16 (1.6) 21:33 (1.6)	04:51 21:36 (1.6)	05:44 22:20	7 21:34 (1.6)	06:46 20:10	07:46 18:50	08:50 16:35
9	09:02 16:14	08:13 17:18	07:05 18:19	06:42 20:25	05:29 21:27	04:43 22:18	21:16 (1.6) 21:34 (1.6)	04:52 21:34 (1.6)	05:46 21:26	18 21:08 (4.7 C)	06:48 20:08	07:48 18:47	08:52 16:33
10	09:01 16:15	08:11 17:20	07:02 18:22	06:39 20:27	05:27 21:29	04:42 22:19	21:15 (1.6) 21:34 (1.6)	04:53 21:34 (1.6)	05:48 21:23	20 21:05 (4.7 C)	06:50 20:05	07:51 18:44	08:53 16:31
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:41 22:20	21:15 (1.6) 21:35 (1.6)	04:55 21:35 (1.6)	05:50 21:21	21 21:02 (4.7 C)	06:52 20:02	07:53 18:42	08:54 16:29
12	08:59 16:19	08:07 17:24	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:20	21:14 (1.6) 21:35 (1.6)	04:56 21:35 (1.6)	05:54 21:19	22 21:00 (4.7 C)	06:54 20:00	07:55 18:39	08:56 16:27
13	08:58 16:20	08:04 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:40 22:21	21:15 (1.6) 21:36 (1.6)	04:57 21:36 (1.6)	05:54 21:17	21 21:07 (4.7 C)	06:56 20:00	07:57 18:37	08:57 16:26
14	08:57 16:22	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	21:15 (1.6) 21:37 (1.6)	04:59 21:36 (1.6)	05:56 21:14	22 21:07 (4.7 C)	06:58 20:00	07:59 18:34	08:58 16:24
15	08:56 16:24	08:00 17:31	06:49 18:32	06:26 20:37	05:17 21:39	04:40 22:23	21:15 (1.6) 21:38 (1.6)	05:00 21:38 (1.6)	05:58 21:12	23 21:07 (4.7 C)	07:00 20:00	08:01 18:31	08:59 16:22
16	08:55 16:26	07:58 17:33	06:46 18:34	06:24 20:39	05:15 21:41	04:39 22:23	21:14 (1.6) 21:37 (1.6)	05:02 21:37 (1.6)	06:00 21:09	24 21:05 (4.7 C)	07:02 20:00	08:03 18:29	09:00 16:20
17	08:54 16:28	07:55 17:36	06:44 18:36	06:21 20:41	05:13 21:43	04:39 22:24	21:14 (1.6) 21:38 (1.6)	05:03 22:09	06:02 21:07	5 21:05 (4.7 C)	07:04 20:00	08:05 18:26	09:01 16:18
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:44	04:39 22:24	21:14 (1.6) 21:38 (1.6)	05:05 22:08	06:04 21:05	9 21:06 (4.7 C)	07:06 20:00	08:07 18:24	09:02 16:17
19	08:51 16:32	07:50 17:40	06:38 18:41	06:16 20:45	05:09 21:46	04:39 22:25	21:14 (1.6) 21:40 (1.6)	05:07 21:38 (1.6)	06:06 21:02	12 21:07 (4.7 C)	07:08 20:00	08:09 18:21	09:02 16:15
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:08 21:48	04:39 22:25	21:15 (1.6) 21:39 (1.6)	05:08 22:05	06:08 21:00	14 21:09 (4.7 C)	07:10 20:00	08:12 18:19	09:03 16:13
21	08:49 16:36	07:46 17:44	06:33 18:45	06:11 20:50	05:06 21:50	04:39 22:25	21:15 (1.6) 21:40 (1.6)	05:10 22:03	06:10 20:57	15 21:09 (4.7 C)	07:12 20:00	08:14 18:16	09:04 16:12
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:39 22:26	21:15 (1.6) 21:39 (1.6)	05:12 22:01	06:12 20:55	16 21:10 (4.7 C)	07:14 20:00	08:16 18:14	09:04 16:10
23	08:46 16:40	07:41 17:49	06:27 18:49	06:06 20:54	05:02 21:54	04:40 22:26	21:15 (1.6) 21:39 (1.6)	05:13 22:00	06:14 20:52	18 21:11 (4.7 C)	07:16 20:00	08:18 18:11	09:05 16:09
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	21:16 (1.6) 21:40 (1.6)	05:15 21:58	06:16 20:50	19 21:11 (4.7 C)	07:18 20:00	08:20 18:09	09:05 16:07
25	08:42 16:44	07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57	04:40 22:26	21:16 (1.6) 21:40 (1.6)	05:17 21:56	06:18 20:52	20 21:12 (4.7 C)	07:20 20:00	08:22 18:07	09:06 16:06
26	08:41 16:46	07:33 17:56	06:19 18:55	05:59 21:00	04:58 21:59	04:41 22:26	21:17 (1.6) 21:40 (1.6)	05:19 21:55	06:20 20:52	21 21:12 (4.7 C)	07:22 20:00	08:24 18:06	09:06 16:05
27	08:39 16:49	07:31 17:58	06:17 18:57	05:56 21:02	04:56 22:00	04:41 22:26	21:17 (1.6) 21:40 (1.6)	05:21 21:53	06:22 20:52	20 21:12 (4.7 C)	07:24 20:00	08:26 18:04	09:06 16:04
28	08:37 16:51	07:28 18:00	06:14 18:59	05:54 21:04	04:55 22:02	04:42 22:25	21:18 (1.6) 21:40 (1.6)	05:22 21:51	06:24 20:52	21 21:13 (4.7 C)	07:26 20:00	08:28 18:02	09:06 16:02
29	08:35 16:53	07:11 20:02	05:52 21:06	04:54 22:03	04:44 22:25	04:43 22:26	21:18 (1.6) 21:40 (1.6)	05:24 21:49	06:26 20:52	21 21:13 (4.7 C)	07:28 20:00	08:31 18:01	09:06 16:01
30	08:34 16:55	07:09 20:04	05:49 21:08	04:52 22:05	04:43 22:25	04:43 22:26	21:18 (1.6) 21:40 (1.6)	05:26 21:47	06:28 20:52	20 21:12 (4.7 C)	07:30 20:00	08:33 18:00	09:06 16:00
31	08:32 16:57	07:06 20:06	05:46 22:06	04:51 22:06	04:42 22:26	04:42 22:27	21:19 (1.6) 21:45	05:28 21:40 (1.6)	06:30 20:52	18 21:10 (4.7 C)	07:32 20:00	08:35 18:00	09:06 16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216	
Total, worst case					303	557	373	59					
Sun reduction					0.59	0.62	0.57	0.52					
Oper. time red.					0.99	0.99	0.99	0.99					
Wind dir. red.					0.62	0.60	0.61	0.62					
Total reduction					0.36	0.36	0.34	0.32					
Total, real					108	203	129	19					

Table layout: For each day in each month the following 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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Strautnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (39)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:02	08:30 16:59	16:04 (1.6) 18:02	07:26 18:02	07:03 20:08	04:50 22:08
2	09:06 16:03	08:28 17:02	16:03 (1.6) 18:04	07:23 18:04	07:01 20:10	04:49 22:09
3	09:06 16:05	08:26 17:04	16:03 (1.6) 18:06	07:20 18:06	06:58 20:12	04:48 22:11
4	09:05 16:06	08:24 17:06	16:04 (1.6) 18:09	07:18 18:09	06:55 20:14	04:47 22:12
5	09:05 16:07	08:22 17:08	16:04 (1.6) 18:11	07:15 18:11	06:53 20:16	04:46 22:13
6	09:04 16:09	08:20 17:11	16:04 (1.6) 18:13	07:13 18:13	06:50 20:18	04:45 22:15
7	09:04 16:10	08:18 17:13	16:05 (1.6) 18:15	07:10 18:15	06:47 20:20	04:44 22:16
8	09:03 16:12	08:16 17:15	16:06 (1.6) 18:17	07:07 18:17	06:45 20:22	04:43 22:17
9	09:02 16:13	08:13 17:17	16:06 (1.6) 18:19	07:05 18:19	06:42 20:25	04:42 22:18
10	09:01 16:15	08:11 17:20	16:08 (1.6) 18:22	07:02 18:22	06:39 20:27	04:42 22:19
11	09:00 16:17	08:09 17:22	16:10 (1.6) 18:24	07:00 18:24	06:37 20:29	04:41 22:20
12	09:00 16:19	08:07 17:24	16:12 (1.6) 18:26	06:57 18:26	06:34 20:31	04:41 22:21
13	08:59 16:20	08:04 17:26	16:19 (1.6) 18:28	06:54 18:28	06:32 20:33	04:40 22:21
14	08:57 16:22	08:02 17:29	16:19 (1.6) 18:30	06:52 18:30	06:30 20:35	04:40 22:22
15	08:56 16:24	08:00 17:31	16:19 (1.6) 18:32	06:49 18:32	06:26 20:37	04:40 22:23
16	08:55 16:26	07:58 17:33	16:19 (1.6) 18:34	06:46 18:34	06:24 20:39	04:39 22:23
17	08:54 16:28	07:55 17:35	16:19 (1.6) 18:36	06:44 18:36	06:21 20:41	04:39 22:24
18	08:53 16:30	07:53 17:38	16:19 (1.6) 18:39	06:41 18:39	06:19 20:43	04:39 22:24
19	08:51 16:32	07:50 17:40	16:19 (1.6) 18:41	06:38 18:41	06:16 20:45	04:39 22:25
20	08:50 16:34	07:48 17:42	16:19 (1.6) 18:43	06:36 18:43	06:14 20:48	04:39 22:25
21	08:49 16:36	07:46 17:44	16:19 (1.6) 18:45	06:33 18:45	06:11 20:50	04:39 22:25
22	08:47 16:38	07:43 17:47	16:19 (1.6) 18:47	06:30 18:47	06:09 20:52	04:39 22:26
23	08:46 16:40	07:41 17:49	16:19 (1.6) 18:49	06:27 18:49	06:06 20:54	04:40 22:26
24	08:44 16:42	07:38 17:51	16:19 (1.6) 18:51	06:25 18:51	06:04 20:56	04:40 22:26
25	08:42 16:44	07:36 17:53	16:19 (1.6) 18:53	06:22 18:53	06:01 20:58	04:40 22:26
26	08:41 16:46	16:09 (1.6) 17:55	16:19 (1.6) 18:55	06:19 18:55	05:59 21:00	04:41 22:26
27	08:39 16:48	16:07 (1.6) 17:58	16:19 (1.6) 18:57	06:17 18:57	05:56 21:02	04:41 22:26
28	08:37 16:51	16:06 (1.6) 18:00	16:19 (1.6) 18:59	06:14 18:59	05:54 21:04	04:42 22:25
29	08:35 16:53	16:05 (1.6) 18:02	16:19 (1.6) 19:01	07:11 20:02	05:51 21:06	04:42 22:25
30	08:34 16:55	16:05 (1.6) 18:04	16:19 (1.6) 19:03	07:09 20:04	05:49 21:08	04:43 22:25
31	08:32 16:57	16:04 (1.6) 18:06	16:19 (1.6) 19:06	07:06 20:06	05:47 21:10	04:43 22:25
Potential sun hours	235	266	366	426	508	529
Total, worst case	60	227	209			
Sun reduction	0.18	0.32	0.40			
Oper. time red.	0.99	0.99	0.99			
Wind dir. red.	0.67	0.67	0.67			
Total reduction	0.12	0.22	0.27			
Total, real	7	49	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:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Strautnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (39)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:32	07:32	18:06 (1.5.)	07:38
	22:24	21:43	20:29	19:08	18:25 (1.5.)	16:50
2	04:45	05:32	06:34	07:34	18:05 (1.5.)	07:40
	22:24	21:41	20:26	19:06	18:25 (1.5.)	16:48
3	04:46	05:34	06:36	07:36	18:04 (1.5.)	07:42
	22:23	21:39	20:24	19:03	18:25 (1.5.)	16:46
4	04:47	05:36	06:38	07:38	18:03 (1.5.)	07:44
	22:23	21:37	20:21	19:00	18:25 (1.5.)	16:44
5	04:48	05:38	06:40	07:40	18:03 (1.5.)	07:46
	22:22	21:35	20:18	18:58	18:25 (1.5.)	16:42
6	04:49	05:40	06:42	07:42	18:03 (1.5.)	07:49
	22:21	21:32	20:16	18:55	18:24 (1.5.)	16:39
7	04:50	05:41	06:44	07:44	18:03 (1.5.)	07:51
	22:21	21:30	20:13	18:52	18:21 (1.5.)	16:37
8	04:51	05:43	06:46	07:46	18:03 (1.5.)	07:53
	22:20	21:28	20:10	18:50	18:18 (1.5.)	16:35
9	04:52	05:45	06:48	07:48	18:04 (1.5.)	07:55
	22:19	21:26	20:08	18:47	18:15 (1.5.)	16:33
10	04:53	05:47	06:50	07:51	18:06 (1.5.)	07:57
	22:18	21:24	20:05	18:44	18:13 (1.5.)	16:31
11	04:55	05:49	06:52	07:53	18:07 (1.5.)	07:59
	22:17	21:21	20:02	18:42	18:11 (1.5.)	16:29
12	04:56	05:51	06:54	07:55	18:08	08:02
	22:16	21:19	20:00	18:39	16:27	14
13	04:57	05:53	06:56	07:57	18:08	08:04
	22:14	21:17	19:57	18:37	16:25	12
14	04:59	05:55	06:58	07:59	18:06	15:38 (1.6.)
	22:13	21:14	19:54	18:34	16:24	8
15	05:00	05:57	07:00	08:01	18:08	15:40 (1.6.)
	22:12	21:12	19:51	18:31	16:22	5
16	05:02	05:59	07:02	08:03	18:10	15:42 (1.6.)
	22:11	21:09	19:49	18:29	16:20	1
17	05:03	06:02	07:04	08:05	18:12	15:43 (1.6.)
	22:09	21:07	19:46	18:26	16:18	
18	05:05	06:04	07:06	08:07	18:14	15:52
	22:08	21:05	19:43	18:24	16:17	
19	05:06	06:06	07:08	08:09	18:16	15:52
	22:06	21:02	19:41	18:21	16:15	
20	05:08	06:08	07:10	08:12	18:18	15:52
	22:05	21:00	19:38	18:19	16:13	
21	05:10	06:10	07:12	08:14	18:20	15:53
	22:03	20:57	19:35	18:16	16:12	
22	05:11	06:12	07:14	08:16	18:23	15:53
	22:02	20:55	19:32	18:14	16:10	
23	05:13	06:14	07:16	08:18	18:25	15:54
	22:00	20:52	19:30	18:11	16:09	
24	05:15	06:16	07:18	08:20	18:26	15:54
	21:58	20:50	19:27	18:09	16:07	
25	05:17	06:18	07:20	07:22	18:28	15:54
	21:56	20:47	19:24	17:07	16:06	
26	05:19	06:20	07:22	07:25	18:30	15:55
	21:55	20:44	19:22	17:04	16:05	
27	05:20	06:22	07:24	07:27	18:32	15:55
	21:53	20:42	19:19	17:02	16:03	
28	05:22	06:24	07:26	18:13 (1.5.)	07:29	15:56
	21:51	20:39	19:16	18:19 (1.5.)	16:59	
29	05:24	06:26	07:28	18:09 (1.5.)	07:31	15:56
	21:49	20:37	19:14	18:22 (1.5.)	16:57	
30	05:26	06:28	07:30	18:07 (1.5.)	07:33	15:57
	21:47	20:34	19:11	18:23 (1.5.)	16:55	
31	05:28	06:30		18:25 (1.5.)	07:35	15:58
	21:45	20:31		16:53	15:52 (1.6.)	
Potential sun hours	530	470	385	323	247	216
Total, worst case			35	201	267	
Sun reduction			0.46	0.31	0.16	
Oper. time red.			0.99	0.99	0.99	
Wind dir. red.			0.67	0.67	0.67	
Total reduction			0.31	0.21	0.10	
Total, real			11	41	28	

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Strazdi - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (1)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:04 20:08	05:47 21:11	04:50 22:08	04:44 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 16:00
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:59
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:43 21:15	04:48 22:11	04:46 22:23	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:07	08:24 17:07	07:18 18:09	06:56 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:44 15:57
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	04:45 22:14	04:49 22:21	05:40 21:32	06:42 20:16	07:42 18:55	07:49 16:40	08:48 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:48 20:20	05:34 21:23	04:44 22:15	04:50 22:20	05:42 21:30	06:44 20:13	07:44 18:52	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:16	07:08 18:17	06:45 20:23	05:31 21:25	04:44 22:17	04:51 22:20	05:44 21:28	06:46 20:10	07:47 18:50	07:53 16:36	08:50 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	04:54 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:57 16:32	08:53 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:20	04:55 22:17	05:50 21:21	06:52 20:02	07:53 18:42	07:59 16:30	08:54 15:53
12	08:59 16:19	08:07 17:25	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:20	04:57 22:15	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:28	08:56 15:53
13	08:58 16:21	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:41 22:21	04:58 22:14	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:53
14	08:57 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:25	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:46 18:35	06:24 20:39	05:15 21:41	04:40 22:23	05:02 22:10	06:00 21:09	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:22 20:41	05:13 21:43	04:40 22:24	05:04 22:09	06:02 21:07	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:44	04:40 22:24	05:05 22:08	06:04 21:05	07:06 19:43	08:07 18:24	08:14 16:17	09:02 15:53
19	08:51 16:32	07:50 17:40	06:38 18:41	06:16 20:46	05:10 21:46	04:40 22:25	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:16 16:15	09:02 15:53
20	08:50 16:34	07:48 17:43	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:18 16:14	09:03 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:25	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:17	08:20 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:05 21:52	04:40 22:25	05:12 22:01	06:12 20:55	07:14 19:33	08:16 18:14	08:22 16:11	09:04 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:53	04:40 22:26	05:14 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:24 16:09	09:05 15:54
24	08:44 16:43	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:16 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:26 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:53	06:01 20:58	05:00 21:57	04:41 22:26	05:17 21:56	06:18 20:47	07:20 19:25	07:22 17:07	08:28 16:07	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	07:25 17:05	08:30 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	04:42 22:26	05:21 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:25	05:23 21:51	06:24 20:39	07:26 19:16	07:29 17:00	08:34 16:03	09:06 15:58
29	08:35 16:53		07:12 20:02	05:52 21:06	04:54 22:03	04:43 22:25	05:25 21:49	06:26 20:37	07:28 19:14	07:31 16:57	08:36 16:02	09:06 15:59
30	08:34 16:55		07:09 20:04	05:49 21:08	04:53 22:05	04:44 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:01	09:06 16:00
31	08:32 16:58		07:06 20:06	05:52 22:06	04:52 22:06	05:28 21:45	05:28 20:32	06:30 19:11	07:35 16:53	07:35 16:01	09:06 16:01	
Potential sun hours	235	266	366	426	508	529	529	469	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Sudmali - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (18)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December		
1	09:06 16:03	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:11	20:04 (2.2) 20:30 (2.2)	04:50 22:08	04:44 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 15:59	
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	20:05 (2.2) 20:29 (2.2)	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:58	
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	20:05 (2.2) 20:29 (2.2)	04:48 22:11	04:46 22:23	05:34 21:39	20:22 (2.2) 20:30 (2.2)	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:06	08:24 17:07	07:18 18:09	06:55 20:14	05:40 21:17	20:06 (2.2) 20:28 (2.2)	04:47 22:12	04:47 22:23	05:36 21:37	20:19 (2.2) 20:33 (2.2)	06:38 20:21	07:38 19:00	07:44 16:44	08:45 15:57
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	20:05 (2.2) 20:27 (2.2)	04:46 22:13	04:48 22:22	05:38 21:35	20:18 (2.2) 20:34 (2.2)	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 18:13	07:13 18:13	06:50 20:18	05:36 21:21	20:06 (2.2) 20:26 (2.2)	04:45 22:14	04:49 22:21	05:40 21:33	20:17 (2.2) 20:36 (2.2)	06:42 20:16	07:42 18:55	07:49 16:40	08:48 15:55
7	09:04 16:11	08:18 17:13	07:10 18:15	06:48 20:20	05:34 21:23	20:07 (2.2) 20:25 (2.2)	04:44 22:16	04:50 22:21	05:42 21:30	20:16 (2.2) 20:37 (2.2)	06:44 20:13	07:44 18:52	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:15	07:08 18:17	06:45 20:23	05:31 21:25	20:08 (2.2) 20:24 (2.2)	04:44 22:17	04:51 22:20	05:44 21:28	20:15 (2.2) 20:37 (2.2)	06:46 20:10	07:47 18:50	07:53 16:36	08:51 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	20:10 (2.2) 20:22 (2.2)	04:43 22:18	04:52 22:19	05:46 21:26	20:14 (2.2) 20:37 (2.2)	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	20:14 (2.2) 20:20 (2.2)	04:42 22:19	04:54 22:18	05:48 21:24	20:13 (2.2) 20:38 (2.2)	06:50 20:05	07:51 18:45	07:57 16:32	08:53 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	06:20 (2.2)	04:42 22:20	04:55 22:17	05:50 21:21	20:13 (2.2) 20:38 (2.2)	06:52 20:02	07:53 18:42	07:59 16:30	08:55 15:53
12	09:00 16:19	08:07 17:25	06:57 18:26	06:34 20:31	05:23 21:33		04:41 22:21	04:56 22:16	05:52 21:19	20:13 (2.2) 20:38 (2.2)	06:54 20:00	07:55 18:39	08:02 16:28	08:56 15:53
13	08:59 16:21	08:05 17:27	06:54 18:30	06:32 20:33	05:21 21:37		04:41 22:21	04:58 22:17	05:54 21:19	20:13 (2.2) 20:38 (2.2)	06:56 20:00	07:57 18:39	08:04 16:26	08:57 15:52
14	08:58 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37		04:40 22:22	04:59 21:23 (2.1)	05:56 21:14	20:13 (2.2) 20:38 (2.2)	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:24	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39		04:40 22:23	05:01 21:22 (2.1)	05:58 21:12	20:12 (2.2) 20:37 (2.2)	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:46 18:34	06:24 20:39	05:15 21:41		04:40 22:23	05:02 21:21 (2.1)	06:00 21:09	20:12 (2.2) 20:36 (2.2)	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:41	05:13 21:43		04:40 22:24	05:04 21:21 (2.1)	06:02 21:07	20:13 (2.2) 20:35 (2.2)	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:45		04:39 22:24	05:05 21:32 (2.1)	06:04 21:05	20:13 (2.2) 20:33 (2.2)	07:06 19:43	08:07 18:24	08:14 16:17	09:02 15:52
19	08:51 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:10 21:46		04:39 22:25	05:07 21:20 (2.1)	06:06 21:02	20:14 (2.2) 20:30 (2.2)	07:08 19:41	08:10 18:22	08:16 16:15	09:03 15:53
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:09 21:48		04:39 22:25	05:09 21:32 (2.1)	06:08 21:00	20:15 (2.2) 20:28 (2.2)	07:09 19:38	08:12 18:19	08:19 16:14	09:04 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	20:14 (2.2)	04:40 22:25	05:10 21:33 (2.1)	06:10 20:57	20:16 (2.2) 20:26 (2.2)	07:12 19:35	08:14 18:17	08:21 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	20:19 (2.2)	04:40 22:26	05:12 21:33 (2.1)	06:12 20:55	20:19 (2.2) 20:24 (2.2)	07:14 19:33	08:16 18:14	08:23 16:11	09:04 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	20:21 (2.2)	04:40 22:26	05:14 21:33 (2.1)	06:14 20:52	07:16 19:30	08:18 18:12	08:25 16:09	09:05 15:54	
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	20:28 (2.2)	04:40 22:26	05:15 21:33 (2.1)	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:08	09:05 15:55	
25	08:42 16:45	07:36 17:54	06:22 18:53	06:01 20:58	05:00 21:57	20:25 (2.2)	04:41 22:26	05:17 21:32 (2.1)	06:18 20:47	07:20 19:25	08:22 17:07	08:28 16:06	09:06 15:56	
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	20:26 (2.2)	04:41 22:26	05:19 21:33 (2.1)	06:20 20:45	07:22 19:22	08:23 17:04	08:30 16:05	09:06 15:56	
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:02	04:57 22:00	20:25 (2.2)	04:42 22:26	05:21 21:34 (2.1)	06:22 20:42	07:24 19:19	08:32 17:02	09:06 16:04		
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	20:25 (2.2)	04:42 22:25	05:23 21:35 (2.1)	06:24 20:39	07:26 19:16	08:34 17:00	09:06 16:03		
29	08:35 16:53	07:12 20:02	05:52 21:06	04:54 22:03	04:54 22:03	20:24 (2.2)	04:43 22:25	05:24 21:49	06:26 20:37	07:28 19:14	08:36 16:57	09:06 16:02		
30	08:34 16:55	07:09 20:04	05:49 21:09	04:53 22:05	04:53 22:05	20:24 (2.2)	04:44 22:25	05:26 21:47	06:28 20:34	07:30 19:11	08:38 16:55	09:06 16:00		
31	08:32 16:58	07:06 20:06	05:46 21:06	04:51 22:06	04:51 22:06		05:28 21:45	06:30 20:32	07:32 19:11	07:36 16:53	09:06 16:01			
Potential sun hours	235	266	366	426	508		529	530	470	385	324	247	216	
Total, worst case				193	190		149		383					
Sun reduction				0.57	0.59		0.62		0.52					
Oper. time red.				0.99	0.99		0.99		0.99					
Wind dir. red.				0.63	0.63		0.60		0.63					
Total reduction				0.36	0.37		0.37		0.32					
Total, real				69	70		54		124					

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Svires - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (81)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:46
	16:07	17:08	18:11	20:16	21:19	22:14	22:22	21:35	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:07
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Tiltneiki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (43)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January			February			March			April			May			June		
1	09:06		14:19 (4.3.)	08:30		09:11 (4.4.B)	07:26		07:52 (4.4.C)	07:04		05:47				04:50		06:08 (1.4.)
	16:02	27	14:46 (4.3.)	17:00	53	16:17 (4.2.)	18:02	21	08:13 (4.4.C)	20:08		21:11				22:08	32	06:40 (1.4.)
2	09:06		14:21 (4.3.)	08:28		09:10 (4.4.B)	07:23		07:51 (4.4.C)	07:01		05:45				04:49		06:09 (1.4.)
	16:04	25	14:46 (4.3.)	17:02	56	16:18 (4.2.)	18:05	23	08:14 (4.4.C)	20:10		21:13				22:10	31	06:40 (1.4.)
3	09:06		14:21 (4.3.)	08:26		09:10 (4.4.B)	07:21		07:50 (4.4.C)	06:58		05:42			06:18 (1.4.)	04:48		06:10 (1.4.)
	16:05	25	14:46 (4.3.)	17:04	60	16:20 (4.2.)	18:07	24	08:14 (4.4.C)	20:12		21:15	13	06:31 (1.4.)		22:11	30	06:40 (1.4.)
4	09:05		14:21 (4.3.)	08:24		09:09 (4.4.B)	07:18		07:49 (4.4.C)	06:56		05:40			06:15 (1.4.)	04:47		06:10 (1.4.)
	16:06	25	14:46 (4.3.)	17:06	62	16:20 (4.2.)	18:09	25	08:14 (4.4.C)	20:14		21:17	18	06:33 (1.4.)		22:12	30	06:40 (1.4.)
5	09:05		14:22 (4.3.)	08:22		09:09 (4.4.B)	07:16		07:49 (4.4.C)	06:53		05:38			06:12 (1.4.)	04:46		06:10 (1.4.)
	16:08	25	14:47 (4.3.)	17:09	64	16:21 (4.2.)	18:11	26	08:15 (4.4.C)	20:16		21:19	22	06:34 (1.4.)		22:14	29	06:39 (1.4.)
6	09:04		14:23 (4.3.)	08:20		09:09 (4.4.B)	07:13		07:49 (4.4.C)	06:50		05:36			06:11 (1.4.)	04:45		06:11 (1.4.)
	16:09	24	14:47 (4.3.)	17:11	66	16:22 (4.2.)	18:13	26	08:15 (4.4.C)	20:19		21:21	25	06:36 (1.4.)		22:15	27	06:38 (1.4.)
7	09:04		14:23 (4.3.)	08:18		09:10 (4.4.B)	07:10		07:48 (4.4.C)	06:48		05:33			06:09 (1.4.)	04:44		06:12 (1.4.)
	16:11	24	14:47 (4.3.)	17:13	67	16:23 (4.2.)	18:15	26	08:14 (4.4.C)	20:21		21:23	28	06:37 (1.4.)		22:16	27	06:39 (1.4.)
8	09:03		14:24 (4.3.)	08:16		09:09 (4.4.B)	07:08		07:49 (4.4.C)	06:45		05:31			06:08 (1.4.)	04:43		06:12 (1.4.)
	16:12	23	14:47 (4.3.)	17:16	68	16:23 (4.2.)	18:18	25	08:14 (4.4.C)	20:23		21:25	30	06:38 (1.4.)		22:17	26	06:38 (1.4.)
9	09:02		14:25 (4.3.)	08:14		09:10 (4.4.B)	07:05		07:49 (4.4.C)	06:42		05:29			06:07 (1.4.)	04:43		06:13 (1.4.)
	16:14	22	14:47 (4.3.)	17:18	68	16:24 (4.2.)	18:20	24	08:13 (4.4.C)	20:25		21:27	31	06:38 (1.4.)		22:18	26	06:39 (1.4.)
10	09:02		14:26 (4.3.)	08:12		09:09 (4.4.B)	07:02		07:49 (4.4.C)	06:40		05:27			06:07 (1.4.)	04:42		06:13 (1.4.)
	16:15	21	14:47 (4.3.)	17:20	69	16:24 (4.2.)	18:22	22	08:11 (4.4.C)	20:27		21:29	33	06:40 (1.4.)		22:19	25	06:38 (1.4.)
11	09:01		14:27 (4.3.)	08:09		09:10 (4.4.B)	07:00		07:50 (4.4.C)	06:37		05:25			06:07 (1.4.)	04:41		06:14 (1.4.)
	16:17	20	14:47 (4.3.)	17:22	67	16:24 (4.2.)	18:24	20	08:10 (4.4.C)	20:29		21:31	33	06:40 (1.4.)		22:20	24	06:38 (1.4.)
12	09:00		14:27 (4.3.)	08:07		09:11 (4.4.B)	06:57		07:52 (4.4.C)	06:34		05:23			06:06 (1.4.)	04:41		06:14 (1.4.)
	16:19	19	14:46 (4.3.)	17:25	67	16:25 (4.2.)	18:26	17	08:09 (4.4.C)	20:31		21:33	35	06:41 (1.4.)		22:21	23	06:37 (1.4.)
13	08:59		14:29 (4.3.)	08:05		09:11 (4.4.B)	06:55		07:54 (4.4.C)	06:32		05:21			06:05 (1.4.)	04:41		06:15 (1.4.)
	16:21	17	14:46 (4.3.)	17:27	65	16:24 (4.2.)	18:28	12	08:06 (4.4.C)	20:33		21:35	36	06:41 (1.4.)		22:22	22	06:37 (1.4.)
14	08:58		14:31 (4.3.)	08:03		09:13 (4.4.B)	06:52		06:29	05:19		05:19			06:05 (1.4.)	04:40		06:16 (1.4.)
	16:22	15	14:46 (4.3.)	17:29	63	16:24 (4.2.)	18:30		20:35	21:37		21:37	36	06:41 (1.4.)		22:22	22	06:38 (1.4.)
15	08:57		14:32 (4.3.)	08:00		09:13 (4.4.B)	06:49		06:27	05:17		05:17			06:04 (1.4.)	04:40		06:16 (1.4.)
	16:24	12	14:44 (4.3.)	17:31	61	16:24 (4.2.)	18:32		20:37	21:39		21:39	37	06:41 (1.4.)		22:23	22	06:38 (1.4.)
16	08:56		14:35 (4.3.)	07:58		09:15 (4.4.B)	06:47		06:24	05:15		05:15			06:05 (1.4.)	04:40		06:17 (1.4.)
	16:26	8	14:43 (4.3.)	17:34	57	16:24 (4.2.)	18:35		20:39	21:41		21:41	37	06:42 (1.4.)		22:24	21	06:38 (1.4.)
17	08:54			07:56		09:16 (4.4.B)	06:44		06:21	05:13		05:13			06:04 (1.4.)	04:39		06:17 (1.4.)
	16:28			17:36	52	16:23 (4.2.)	18:37		20:42	21:43		21:43	38	06:42 (1.4.)		22:24	21	06:38 (1.4.)
18	08:53		09:28 (4.4.A)	07:53		09:20 (4.4.B)	06:41		06:19	05:11		05:11			06:05 (1.4.)	04:39		06:18 (1.4.)
	16:30	3	09:31 (4.4.A)	17:38	45	16:23 (4.2.)	18:39		20:44	21:45		21:45	37	06:42 (1.4.)		22:25	20	06:38 (1.4.)
19	08:52		09:26 (4.4.A)	07:51		15:49 (4.2.)	06:39		06:16	05:09		05:09			06:05 (1.4.)	04:39		06:18 (1.4.)
	16:32	6	09:32 (4.4.A)	17:40	32	16:21 (4.2.)	18:41		20:46	21:47		21:47	37	06:42 (1.4.)		22:25	20	06:38 (1.4.)
20	08:50		09:24 (4.4.A)	07:48		15:51 (4.2.)	06:36		06:14	05:08		05:08			06:04 (1.4.)	04:39		06:18 (1.4.)
	16:34	9	09:33 (4.4.A)	17:42	30	16:21 (4.2.)	18:43		20:48	21:49		21:49	37	06:41 (1.4.)		22:26	20	06:38 (1.4.)
21	08:49		09:23 (4.4.A)	07:46		15:52 (4.2.)	06:33		06:11	05:06		05:06			06:05 (1.4.)	04:39		06:18 (1.4.)
	16:36	12	09:35 (4.4.A)	17:45	27	16:19 (4.2.)	18:45		20:50	21:50		21:50	37	06:42 (1.4.)		22:26	20	06:38 (1.4.)
22	08:47		09:21 (4.4.A)	07:43		15:54 (4.2.)	06:30		06:09	05:04		05:04			06:04 (1.4.)	04:40		06:18 (1.4.)
	16:38	15	09:36 (4.4.A)	17:47	24	16:18 (4.2.)	18:47		20:52	21:52		21:52	37	06:41 (1.4.)		22:26	20	06:38 (1.4.)
23	08:46		09:19 (4.4.A)	07:41		15:55 (4.2.)	06:28		06:06	05:03		05:03			06:05 (1.4.)	04:40		06:18 (1.4.)
	16:40	17	09:36 (4.4.A)	17:49	21	16:16 (4.2.)	18:49		20:54	21:54		21:54	37	06:42 (1.4.)		22:26	20	06:38 (1.4.)
24	08:44		09:17 (4.4.A)	07:39		15:58 (4.2.)	06:25		06:04	05:01		05:01			06:06 (1.4.)	04:40		06:19 (1.4.)
	16:42	20	09:37 (4.4.A)	17:51	14	16:12 (4.2.)	18:51		20:56	21:56		21:56	36	06:42 (1.4.)		22:26	20	06:39 (1.4.)
25	08:43		09:17 (4.4.A)	07:36			06:22		06:01	05:00		05:00			06:05 (1.4.)	04:41		06:18 (1.4.)
	16:44	21	09:38 (4.4.A)	17:54			18:54		20:58	21:57		21:57	36	06:41 (1.4.)		22:26	21	06:39 (1.4.)
26	08:41		09:16 (4.4.B)	07:33		08:00 (4.4.C)	06:20		05:59	04:58		04:58			06:06 (1.4.)	04:41		06:19 (1.4.)
	16:47	22	09:38 (4.4.A)	17:56	8	08:08 (4.4.C)	18:56		21:00	21:59		21:59	35	06:41 (1.4.)		22:26	21	06:40 (1.4.)
27	08:39		09:15 (4.4.B)	07:31		07:58 (4.4.C)	06:17		05:57	04:57		04:57			06:06 (1.4.)	04:41		06:18 (1.4.)
	16:49	23	09:38 (4.4.A)	17:58	13	08:11 (4.4.C)	18:58		21:03	22:01		22:01	35	06:41 (1.4.)		22:26	22	06:40 (1.4.)
28	08:38		09:13 (4.4.B)	07:28		07:55 (4.4.C)	06:14		05:54	04:55		04:55			06:07 (1.4.)	04:42		06:19 (1.4.)
	16:51	26	09:39 (4.4.A)	18:00	17	08:12 (4.4.C)	19:00		21:05	22:02		22:02	34	06:41 (1.4.)		22:26	22	06:41 (1.4.)
29	08:36		09:12 (4.4.B)				07:12		05:52	04:54		04:54			06:07 (1.4.)	04:43		06:18 (1.4.)
	16:53	40	16:10 (4.2.)				20:02		21:07	22:04		22:04	34	06:41 (1.4.)		22:26	22	06:40 (1.4.)
30	08:34		09:12 (4.4.B)				07:09		05:49	04:53		04:53			06:07 (1.4.)	04:43		06:18 (1.4.)
	16:55	45	16:13 (4.2.)				20:04		21:09	22:05		22:05	33	06:40 (1.4.)		22:25	23	06:41 (1.4.)
31	08:32		09:11 (4.4.B)				07:06			04:51		04:51			06:07 (1.4.)			
	16:58	50	16:15 (4.2.)				20:06			22:07		22:07	33	06:40 (1.4.)				
Potential sun hours	235			266			366		426			508				529		
Total, worst case		641			1296			291				950				709		
Sun reduction		0.18			0.32			0.40				0.59				0.62		
Oper. time red.		0.99			0.99			0.99				0.99				0.99		
Wind dir. red.		0.64			0.64			0.63				0.68				0.68		
Total reduction		0.11			0.20		</											

Project: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Tiltneiki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (43)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July			August			September			October			November			December		
1	04:44		06:18 (1.4.)	05:30		06:17 (1.4.)	06:32		07:32		08:32 (4.4.C)	07:38		08:39 (4.4.B)	08:40		14:09 (4.3.)	
	22:25	24	06:42 (1.4.)	21:43	34	06:51 (1.4.)	20:29		19:09	15	08:47 (4.4.C)	16:51	68	15:53 (4.2.)	15:59	20	14:29 (4.3.)	
2	04:45		06:19 (1.4.)	05:32		06:17 (1.4.)	06:34		07:34		08:30 (4.4.C)	07:40		08:39 (4.4.B)	08:42		14:08 (4.3.)	
	22:24	24	06:43 (1.4.)	21:41	33	06:50 (1.4.)	20:27		19:06	18	08:48 (4.4.C)	16:48	68	15:53 (4.2.)	15:58	21	14:29 (4.3.)	
3	04:46		06:18 (1.4.)	05:34		06:17 (1.4.)	06:36		07:36		08:28 (4.4.C)	07:42		08:39 (4.4.B)	08:43		14:08 (4.3.)	
	22:24	25	06:43 (1.4.)	21:39	32	06:49 (1.4.)	20:24		19:03	21	08:49 (4.4.C)	16:46	68	15:53 (4.2.)	15:58	22	14:30 (4.3.)	
4	04:47		06:17 (1.4.)	05:36		06:18 (1.4.)	06:38		07:38		08:27 (4.4.C)	07:44		08:39 (4.4.B)	08:45		14:08 (4.3.)	
	22:23	26	06:43 (1.4.)	21:37	30	06:48 (1.4.)	20:21		19:00	23	08:50 (4.4.C)	16:44	67	15:53 (4.2.)	15:57	23	14:31 (4.3.)	
5	04:48		06:17 (1.4.)	05:38		06:19 (1.4.)	06:40		07:41		08:26 (4.4.C)	07:47		08:39 (4.4.B)	08:46		14:09 (4.3.)	
	22:22	27	06:44 (1.4.)	21:35	29	06:48 (1.4.)	20:19		18:58	24	08:50 (4.4.C)	16:42	66	15:52 (4.2.)	15:56	23	14:32 (4.3.)	
6	04:49		06:17 (1.4.)	05:40		06:20 (1.4.)	06:42		07:43		08:25 (4.4.C)	07:49		08:39 (4.4.B)	08:48		14:09 (4.3.)	
	22:22	28	06:45 (1.4.)	21:33	27	06:47 (1.4.)	20:16		18:55	25	08:50 (4.4.C)	16:40	64	15:51 (4.2.)	15:55	24	14:33 (4.3.)	
7	04:50		06:17 (1.4.)	05:42		06:21 (1.4.)	06:44		07:45		08:24 (4.4.C)	07:51		08:40 (4.4.B)	08:49		14:08 (4.3.)	
	22:21	28	06:45 (1.4.)	21:31	25	06:46 (1.4.)	20:13		18:53	26	08:50 (4.4.C)	16:38	62	15:51 (4.2.)	15:55	25	14:33 (4.3.)	
8	04:51		06:17 (1.4.)	05:44		06:23 (1.4.)	06:46		07:47		08:25 (4.4.C)	07:53		08:40 (4.4.B)	08:51		14:09 (4.3.)	
	22:20	29	06:46 (1.4.)	21:28	21	06:44 (1.4.)	20:11		18:50	25	08:50 (4.4.C)	16:36	59	15:49 (4.2.)	15:54	25	14:34 (4.3.)	
9	04:52		06:16 (1.4.)	05:46		06:24 (1.4.)	06:48		07:49		08:24 (4.4.C)	07:55		08:41 (4.4.B)	08:52		14:09 (4.3.)	
	22:19	30	06:46 (1.4.)	21:26	17	06:41 (1.4.)	20:08		18:47	26	08:50 (4.4.C)	16:34	56	15:49 (4.2.)	15:54	25	14:34 (4.3.)	
10	04:54		06:17 (1.4.)	05:48		06:27 (1.4.)	06:50		07:51		08:24 (4.4.C)	07:58		08:41 (4.4.B)	08:54		14:10 (4.3.)	
	22:18	31	06:48 (1.4.)	21:24	11	06:38 (1.4.)	20:05		18:45	25	08:49 (4.4.C)	16:32	52	15:47 (4.2.)	15:53	25	14:35 (4.3.)	
11	04:55		06:17 (1.4.)	05:50			06:52		07:53		08:24 (4.4.C)	08:00		08:42 (4.4.B)	08:55		14:10 (4.3.)	
	22:17	31	06:48 (1.4.)	21:22			20:03		18:42	24	08:48 (4.4.C)	16:30	50	15:46 (4.2.)	15:53	26	14:36 (4.3.)	
12	04:56		06:16 (1.4.)	05:52			06:54		07:55		08:24 (4.4.C)	08:02		08:43 (4.4.B)	08:56		14:11 (4.3.)	
	22:16	32	06:48 (1.4.)	21:19			20:00		18:39	23	08:47 (4.4.C)	16:28	45	15:44 (4.2.)	15:52	26	14:37 (4.3.)	
13	04:58		06:16 (1.4.)	05:54			06:56		07:57		08:26 (4.4.C)	08:04		08:44 (4.4.B)	08:57		14:11 (4.3.)	
	22:15	32	06:48 (1.4.)	21:17			19:57		18:37	19	08:45 (4.4.C)	16:26	40	15:42 (4.2.)	15:52	26	14:37 (4.3.)	
14	04:59		06:16 (1.4.)	05:56			06:58		07:59		08:29 (4.4.C)	08:06		08:46 (4.4.B)	08:58		14:11 (4.3.)	
	22:14	34	06:50 (1.4.)	21:15			19:54		18:34	16	08:45 (4.4.C)	16:24	26	09:12 (4.4.A)	15:52	26	14:37 (4.3.)	
15	05:01		06:16 (1.4.)	05:58			07:00		08:01		08:31 (4.4.C)	08:08		08:48 (4.4.B)	08:59		14:11 (4.3.)	
	22:12	34	06:50 (1.4.)	21:12			19:52		18:32	11	08:42 (4.4.C)	16:22	23	09:11 (4.4.A)	15:52	27	14:38 (4.3.)	
16	05:02		06:15 (1.4.)	06:00			07:02		08:03		08:33 (4.4.C)	08:10		08:49 (4.4.B)	09:00		14:12 (4.3.)	
	22:11	35	06:50 (1.4.)	21:10			19:49		18:29	6	08:39 (4.4.C)	16:20	22	09:11 (4.4.A)	15:52	26	14:38 (4.3.)	
17	05:04		06:16 (1.4.)	06:02			07:04		08:06		16:32 (4.2.)	08:13		08:51 (4.4.A)	09:01		14:12 (4.3.)	
	22:10	35	06:51 (1.4.)	21:07			19:46		18:27	9	16:41 (4.2.)	16:19	21	09:12 (4.4.A)	15:52	27	14:39 (4.3.)	
18	05:05		06:15 (1.4.)	06:04			07:06		08:08		16:29 (4.2.)	08:15		08:51 (4.4.A)	09:02		14:13 (4.3.)	
	22:08	36	06:51 (1.4.)	21:05			19:44		18:24	17	16:46 (4.2.)	16:17	20	09:11 (4.4.A)	15:52	27	14:40 (4.3.)	
19	05:07		06:15 (1.4.)	06:06			07:08		08:10		16:26 (4.2.)	08:17		08:54 (4.4.A)	09:03		14:13 (4.3.)	
	22:07	37	06:52 (1.4.)	21:02			19:41		18:22	22	16:48 (4.2.)	16:15	17	09:11 (4.4.A)	15:53	26	14:39 (4.3.)	
20	05:08		06:15 (1.4.)	06:08			07:10		08:12		16:23 (4.2.)	08:19		08:56 (4.4.A)	09:04		14:13 (4.3.)	
	22:05	36	06:51 (1.4.)	21:00			19:38		18:19	26	16:49 (4.2.)	16:14	15	09:11 (4.4.A)	15:53	27	14:40 (4.3.)	
21	05:10		06:15 (1.4.)	06:10			07:12		08:14		16:21 (4.2.)	08:21		08:58 (4.4.A)	09:04		14:14 (4.3.)	
	22:03	37	06:52 (1.4.)	20:57			19:35		18:17	29	16:50 (4.2.)	16:12	12	09:10 (4.4.A)	15:53	27	14:41 (4.3.)	
22	05:12		06:15 (1.4.)	06:12			07:14		08:16		16:21 (4.2.)	08:23		09:00 (4.4.A)	09:05		14:14 (4.3.)	
	22:02	37	06:52 (1.4.)	20:55			19:33		18:14	30	16:51 (4.2.)	16:11	9	09:09 (4.4.A)	15:54	27	14:41 (4.3.)	
23	05:14		06:15 (1.4.)	06:14			07:16		08:18		16:19 (4.2.)	08:25		09:03 (4.4.A)	09:05		14:15 (4.3.)	
	22:00	37	06:52 (1.4.)	20:52			19:30		18:12	33	16:52 (4.2.)	16:09	6	09:09 (4.4.A)	15:54	27	14:42 (4.3.)	
24	05:15		06:14 (1.4.)	06:16			07:18		08:21		09:48 (4.4.B)	08:27		09:05 (4.4.A)	09:06		14:15 (4.3.)	
	21:58	38	06:52 (1.4.)	20:50			19:27		18:09	47	16:52 (4.2.)	16:08	3	09:08 (4.4.A)	15:55	27	14:42 (4.3.)	
25	05:17		06:15 (1.4.)	06:18			07:20		07:23		08:46 (4.4.B)	08:29			09:06		14:16 (4.3.)	
	21:57	37	06:52 (1.4.)	20:47			19:25		17:07	53	15:53 (4.2.)	16:06			15:55	27	14:43 (4.3.)	
26	05:19		06:15 (1.4.)	06:20			07:22		07:25		08:44 (4.4.B)	08:31		14:13 (4.3.)	09:06		14:16 (4.3.)	
	21:55	37	06:52 (1.4.)	20:45			19:22		17:04	58	15:53 (4.2.)	16:05	8	14:21 (4.3.)	15:56	27	14:43 (4.3.)	
27	05:21		06:15 (1.4.)	06:22			07:24		07:27		08:42 (4.4.B)	08:33		14:11 (4.3.)	09:07		14:17 (4.3.)	
	21:53	37	06:52 (1.4.)	20:42			19:19		17:02	62	15:53 (4.2.)	16:04	12	14:23 (4.3.)	15:57	26	14:43 (4.3.)	
28	05:23		06:15 (1.4.)	06:24			07:26		07:29		08:42 (4.4.B)	08:34		14:10 (4.3.)	09:07		14:17 (4.3.)	
	21:51	37	06:52 (1.4.)	20:40			19:17		17:00	63	15:54 (4.2.)	16:03	15	14:25 (4.3.)	15:58	27	14:44 (4.3.)	
29	05:24		06:16 (1.4.)	06:26			07:28		07:31		08:41 (4.4.B)	08:36		14:10 (4.3.)	09:07		14:18 (4.3.)	
	21:49	36	06:52 (1.4.)	20:37			19:14		16:57	66	15:54 (4.2.)	16:01	17	14:27 (4.3.)	15:59	26	14:44 (4.3.)	
30	05:26		06:15 (1.4.)	06:28			07:30		07:34		08:41 (4.4.B)	08:38		14:10 (4.3.)	09:07		14:18 (4.3.)	
	21:47	36	06:51 (1.4.)	20:34			19:11	9	08:35 (4.4.C)		16:55		16:00	18	14:28 (4.3.)	16:00	27	14:45 (4.3.)
31	05:28		06:16 (1.4.)	06:30					07:36		08:40 (4.4.B)				09:07		14:19 (4.3.)	
	21:45	35	06:51 (1.4.)	20:32					16:53	68	15:54 (4.2.)				16:01	27	14:46 (4.3.)	
Potential sun hours	530			470			385			323			247		216			
Total, worst case	1018			259			9		976				1009		792			
Sun reduction	0.57			0.52			0.46		0.31				0.16		0.10			
Oper. time red.	0.99			0.99			0.99		0.99				0.99		0.99			
Wind dir. red.	0.68			0.68			0.63		0.65				0.63		0.66			
Total reduction	0.38			0.34			0.28		0.19				0.10		0.07			
Total, real	385			89			3		190				97		53			

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Tales - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (27)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:39
	16:02	17:00	18:02	20:08	21:10	22:08	22:24	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:04	17:02	18:04	20:10	21:13	22:09	22:24	21:41	20:26	19:06	16:48	15:58
3	09:05	08:26	07:20	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:44
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:57
5	09:05	08:22	07:15	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:46	08:46
	16:08	17:09	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:42	07:48	08:48
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:40	15:55
7	09:03	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:44	07:51	08:49
	16:11	17:13	18:15	20:20	21:23	22:16	22:20	21:30	20:13	18:52	16:37	15:54
8	09:03	08:15	07:07	06:45	05:31	04:43	04:51	05:44	06:46	07:46	07:53	08:50
	16:12	17:15	18:17	20:22	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:48	07:55	08:52
	16:14	17:18	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:54	05:48	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:23	20:05	18:44	16:31	15:53
11	09:00	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	07:59	08:54
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:53
12	08:59	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:20	22:15	21:19	20:00	18:39	16:27	15:52
13	08:58	08:04	06:54	06:32	05:21	04:40	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:21	22:14	21:17	19:57	18:37	16:26	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:23	22:10	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:44	22:24	22:08	21:04	19:43	18:24	16:17	15:52
19	08:51	07:50	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:09	08:16	09:02
	16:32	17:40	18:41	20:45	21:46	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:08	04:39	05:08	06:08	07:10	08:12	08:18	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:53
21	08:48	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:45	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:40	05:12	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:26	22:01	20:55	19:32	18:14	16:10	15:54
23	08:45	07:41	06:27	06:06	05:03	04:40	05:13	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:53	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:26	09:05
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:08	15:55
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:28	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:56	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:24	08:30	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:54	20:44	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:25	21:51	20:39	19:16	17:00	16:02	15:58
29	08:35		07:11	05:52	04:54	04:43	05:24	06:26	07:28	07:31	08:36	09:06
	16:53		20:02	21:06	22:03	22:25	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:06		21:45	20:31		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Tireli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (61)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	17:00	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:27	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:45	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:47	08:47
	16:07	17:09	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:35	04:45	04:49	05:40	06:42	07:43	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:44	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:46	06:48	07:49	07:55	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:02	06:40	05:27	04:42	04:53	05:48	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:50	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:26	15:52
14	08:58	08:03	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:35	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:56	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:06	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:44	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:53
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:45	18:45	20:50	21:50	22:26	22:04	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:21	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:55
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:56	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:49	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:12	05:52	04:54	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:59
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Vecstraki (neapdz.) - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (41)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:39
	16:02	16:59	18:02	20:08	21:10	22:08	22:24	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:09	22:24	21:41	20:26	19:05	16:48	15:58
3	09:05	08:26	07:20	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:44
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:37	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:57	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:48	08:48
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:39	15:55
7	09:03	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:22	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:48	07:55	08:52
	16:13	17:17	18:19	20:24	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:50	07:57	08:53
	16:15	17:20	18:21	20:27	21:29	22:19	22:18	21:23	20:05	18:44	16:31	15:53
11	09:00	08:09	06:59	06:37	05:25	04:41	04:55	05:49	06:52	07:53	07:59	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:18	17:24	18:26	20:31	21:33	22:21	22:16	21:19	19:59	18:39	16:27	15:52
13	08:59	08:04	06:54	06:31	05:20	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:21	22:14	21:17	19:57	18:36	16:25	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:23	15:52
15	08:56	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:57	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:23	22:11	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:03	07:06	08:07	08:14	09:02
	16:30	17:38	18:38	20:43	21:45	22:24	22:08	21:05	19:43	18:24	16:16	15:52
19	08:51	07:50	06:38	06:16	05:09	04:39	05:06	06:05	07:08	08:09	08:16	09:03
	16:32	17:40	18:41	20:45	21:46	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:35	06:13	05:07	04:39	05:08	06:07	07:10	08:12	08:18	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:44	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:08	05:04	04:39	05:11	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:03	05:01	04:40	05:15	06:16	07:18	08:20	08:26	09:05
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:28	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:56	20:47	19:24	17:06	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:18	06:20	07:22	07:24	08:30	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:44	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:25	21:51	20:39	19:16	16:59	16:02	15:58
29	08:35		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:06
	16:53		20:01	21:06	22:03	22:25	21:49	20:37	19:13	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:06		21:45	20:31		16:52		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Vecsameli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (79)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:02 23	14:44 (1.1) 15:07 (1.1) 16:59	08:30 18:02 18:02	07:26 18:02 20:08	05:47 21:11 22:08	04:50 22:25 21:43	04:44 22:25 21:43	05:30 22:25 21:43	06:32 22:25 21:43	07:32 22:25 21:43	07:38 22:25 21:43	08:40 22:25 21:43
2	09:06 16:03 23	14:45 (1.1) 15:08 (1.1) 17:02	08:28 18:04 20:10	07:23 18:04 20:10	05:44 21:13 22:10	04:49 22:24 21:41	04:45 22:24 21:41	05:32 22:24 21:41	06:34 22:24 21:41	07:34 22:24 21:41	07:40 22:24 21:41	08:41 22:24 21:41
3	09:06 16:05 23	14:45 (1.1) 15:08 (1.1) 17:04	08:26 18:06 20:12	07:21 18:06 20:12	05:42 21:15 22:11	04:48 22:24 21:39	04:46 22:24 21:39	05:34 22:24 21:39	06:36 22:24 21:39	07:36 22:24 21:39	07:42 22:24 21:39	08:43 22:24 21:39
4	09:05 16:06 23	14:45 (1.1) 15:08 (1.1) 17:06	08:24 18:09 20:14	07:18 18:09 20:14	05:40 21:17 22:12	04:46 22:23 21:37	04:46 22:23 21:37	05:36 22:23 21:37	06:38 22:23 21:37	07:38 22:23 21:37	07:44 22:23 21:37	08:45 22:23 21:37
5	09:05 16:07 22	14:47 (1.1) 15:09 (1.1) 17:08	08:22 18:11 20:16	07:15 18:11 20:16	05:38 21:19 22:14	04:46 22:22 21:35	04:47 22:22 21:35	05:38 22:22 21:35	06:40 22:22 21:35	07:40 22:22 21:35	07:47 22:22 21:35	08:46 22:22 21:35
6	09:04 16:09 22	14:47 (1.1) 15:09 (1.1) 17:11	08:20 18:13 20:18	07:13 18:13 20:18	05:35 21:21 22:15	04:45 22:22 21:33	04:49 22:22 21:33	05:40 22:22 21:33	06:42 22:22 21:33	07:42 22:22 21:33	07:49 22:22 21:33	08:48 22:22 21:33
7	09:04 16:10 22	14:48 (1.1) 15:10 (1.1) 17:13	08:18 18:15 20:21	07:10 18:15 20:21	05:33 21:23 22:16	04:44 22:21 21:31	04:50 22:21 21:31	05:42 22:21 21:31	06:44 22:21 21:31	07:44 22:21 21:31	07:51 22:21 21:31	08:49 22:21 21:31
8	09:03 16:12 22	14:48 (1.1) 15:10 (1.1) 17:15	08:16 18:17 20:23	07:08 18:17 20:23	05:31 21:25 22:17	04:43 22:20 21:28	04:51 22:20 21:28	05:43 22:20 21:28	06:46 22:20 21:28	07:47 22:20 21:28	07:53 22:20 21:28	08:51 22:20 21:28
9	09:02 16:13 21	14:49 (1.1) 15:10 (1.1) 17:17	08:14 18:19 20:25	07:05 18:19 20:25	05:29 21:27 22:18	04:42 22:19 21:26	04:52 22:19 21:26	05:45 22:19 21:26	06:48 22:19 21:26	07:49 22:19 21:26	07:55 22:19 21:26	08:52 22:19 21:26
10	09:02 16:15 20	14:50 (1.1) 15:10 (1.1) 17:20	08:11 18:22 20:27	07:02 18:22 20:27	05:27 21:29 22:19	04:42 22:18 21:24	04:53 22:18 21:24	05:47 22:18 21:24	06:50 22:18 21:24	07:51 22:18 21:24	07:57 22:18 21:24	08:54 22:18 21:24
11	09:01 16:17 19	14:51 (1.1) 15:10 (1.1) 17:22	08:09 18:24 20:29	07:00 18:24 20:29	05:25 21:31 22:20	04:41 22:17 21:21	04:55 22:17 21:21	05:49 22:17 21:21	06:52 22:17 21:21	07:53 22:17 21:21	08:00 22:17 21:21	08:55 22:17 21:21
12	09:00 16:19 18	14:51 (1.1) 15:09 (1.1) 17:24	08:07 18:26 20:31	06:57 18:26 20:31	05:23 21:33 22:21	04:41 22:16 21:21	04:56 22:16 21:21	05:51 22:16 21:21	06:54 22:16 21:21	07:55 22:16 21:21	08:02 22:16 21:21	08:56 22:16 21:21
13	08:59 16:20 17	14:52 (1.1) 15:09 (1.1) 17:27	08:05 18:28 20:33	06:54 18:28 20:33	05:21 21:35 22:22	04:40 22:15 21:17	04:57 22:15 21:17	05:53 22:15 21:17	06:56 22:15 21:17	07:57 22:15 21:17	08:04 22:15 21:17	08:57 22:15 21:17
14	08:58 16:22 15	14:54 (1.1) 15:09 (1.1) 17:29	08:02 18:30 20:35	06:52 18:30 20:35	05:19 21:37 22:22	04:40 22:14 21:14	04:59 22:14 21:14	05:55 22:14 21:14	06:58 22:14 21:14	07:59 22:14 21:14	08:06 22:14 21:14	08:58 22:14 21:14
15	08:57 16:24 13	14:55 (1.1) 15:08 (1.1) 17:31	08:00 18:32 20:37	06:49 18:32 20:37	05:17 21:39 22:23	04:39 22:12 21:12	05:00 22:12 21:12	05:58 22:12 21:12	07:00 22:12 21:12	08:01 22:12 21:12	08:08 22:12 21:12	08:59 22:12 21:12
16	08:55 16:26 11	14:57 (1.1) 15:08 (1.1) 17:33	07:58 18:34 20:39	06:46 18:34 20:39	05:15 21:41 22:24	04:39 22:11 21:10	05:02 22:11 21:10	06:00 22:11 21:10	07:02 22:11 21:10	08:03 22:11 21:10	08:10 22:11 21:10	09:00 22:11 21:10
17	08:54 16:28 7	14:59 (1.1) 15:06 (1.1) 17:36	07:55 18:37 20:41	06:44 18:37 20:41	05:13 21:43 22:24	04:39 22:09 21:07	05:03 22:09 21:07	06:02 22:09 21:07	07:04 22:09 21:07	08:05 22:09 21:07	08:12 22:09 21:07	09:01 22:09 21:07
18	08:53 16:30 19	15:06 (1.1) 17:38 19:01	07:53 18:39 20:44	06:41 18:39 20:44	05:11 21:45 22:25	04:39 22:08 21:05	05:05 22:08 21:05	06:04 22:08 21:05	07:06 22:08 21:05	08:07 22:08 21:05	08:15 22:08 21:05	09:02 22:08 21:05
19	08:52 16:32 20	15:07 (1.1) 17:40 19:04	07:51 18:41 20:46	06:38 18:41 20:46	05:09 21:47 22:25	04:39 22:07 21:02	05:06 22:07 21:02	06:06 22:07 21:02	07:08 22:07 21:02	08:10 22:07 21:02	08:17 22:07 21:02	09:03 22:07 21:02
20	08:50 16:34 21	15:08 (1.1) 17:42 19:08	07:48 18:43 20:48	06:36 18:43 20:48	05:07 21:48 22:26	04:39 22:05 21:00	05:08 22:05 21:00	06:08 22:05 21:00	07:10 22:05 21:00	08:12 22:05 21:00	08:19 22:05 21:00	09:04 22:05 21:00
21	08:49 16:36 22	15:09 (1.1) 17:44 19:11	07:46 18:45 20:50	06:33 18:45 20:50	05:06 21:50 22:26	04:39 22:03 21:03	05:10 22:03 21:03	06:10 22:03 21:03	07:12 22:03 21:03	08:14 22:03 21:03	08:21 22:03 21:03	09:04 22:03 21:03
22	08:47 16:38 23	15:10 (1.1) 17:47 19:14	07:43 18:47 20:52	06:30 18:47 20:52	05:04 21:52 22:26	04:39 22:02 21:03	05:11 22:02 21:03	06:12 22:02 21:03	07:14 22:02 21:03	08:16 22:02 21:03	08:23 22:02 21:03	09:05 22:02 21:03
23	08:46 16:40 24	15:11 (1.1) 17:49 19:17	07:41 18:49 20:54	06:28 18:49 20:54	05:02 21:54 22:26	04:39 22:00 21:03	05:13 22:00 21:03	06:14 22:00 21:03	07:16 22:00 21:03	08:18 22:00 21:03	08:25 22:00 21:03	09:05 22:00 21:03
24	08:44 16:42 25	15:12 (1.1) 17:51 19:19	07:38 18:51 20:56	06:25 18:51 20:56	05:01 21:56 22:26	04:40 22:00 21:03	05:15 22:00 21:03	06:16 22:00 21:03	07:18 22:00 21:03	08:20 22:00 21:03	08:27 22:00 21:03	09:06 22:00 21:03
25	08:43 16:44 26	15:13 (1.1) 17:53 19:21	07:36 18:53 20:58	06:22 18:53 20:58	05:00 21:57 22:26	04:40 22:00 21:03	05:17 22:00 21:03	06:18 22:00 21:03	07:20 22:00 21:03	08:22 22:00 21:03	08:29 22:00 21:03	09:06 22:00 21:03
26	08:41 16:46 27	15:14 (1.1) 17:55 19:23	07:33 18:55 21:00	06:19 18:55 21:00	04:58 21:59 22:26	04:41 22:00 21:03	05:19 22:00 21:03	06:20 22:00 21:03	07:22 22:00 21:03	08:24 22:00 21:03	08:31 22:00 21:03	09:06 22:00 21:03
27	08:39 16:48 28	15:15 (1.1) 17:58 19:25	07:31 18:58 21:02	06:17 18:58 21:02	04:56 22:01 22:26	04:41 22:00 21:03	05:20 22:00 21:03	06:22 22:00 21:03	07:24 22:00 21:03	08:26 22:00 21:03	08:33 22:00 21:03	09:06 22:00 21:03
28	08:37 16:51 29	15:16 (1.1) 18:00 19:27	07:28 19:00 21:04	06:14 19:00 21:04	04:55 22:02 22:26	04:42 22:00 21:03	05:22 22:00 21:03	06:24 22:00 21:03	07:26 22:00 21:03	08:28 22:00 21:03	08:34 22:00 21:03	09:07 22:00 21:03
29	08:36 16:53 30	15:17 (1.1) 18:01 19:28	07:26 19:01 21:05	06:12 19:01 21:05	04:54 22:02 22:26	04:42 22:00 21:03	05:24 22:00 21:03	06:26 22:00 21:03	07:28 22:00 21:03	08:30 22:00 21:03	08:36 22:00 21:03	09:07 22:00 21:03
30	08:34 16:55 31	15:18 (1.1) 18:02 19:29	07:24 19:02 21:06	06:10 19:02 21:06	04:53 22:02 22:26	04:42 22:00 21:03	05:26 22:00 21:03	06:28 22:00 21:03	07:30 22:00 21:03	08:32 22:00 21:03	08:38 22:00 21:03	09:07 22:00 21:03
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction	0.18										81	713
Oper. time red.	0.99										0.16	0.10
Wind dir. red.	0.66										0.99	0.99
Total reduction	0.12										0.66	0.66
Total, real	37										0.10	0.07

Table layout: For each day in each month the following 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: VPSP wind farm
Description: VPSP wind farm

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Vilniš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (95)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:06 16:02	15:08 (1.5.) 15:19 (1.5.)	08:30 16:59	07:26 18:02	07:03 20:08	05:47 21:11
2	09:06 16:03	15:08 (1.5.) 15:20 (1.5.)	08:28 17:02	07:23 18:04	17:33 (1.2.) 20:10	05:44 21:13
3	09:06 16:05	15:09 (1.5.) 15:22 (1.5.)	08:26 17:04	07:20 18:06	17:32 (1.2.) 20:12	06:58 21:15
4	09:05 16:06	15:09 (1.5.) 15:23 (1.5.)	08:24 17:06	07:18 18:09	17:30 (1.2.) 20:14	06:55 21:17
5	09:05 16:07	15:09 (1.5.) 15:25 (1.5.)	08:22 17:08	07:15 18:11	17:29 (1.2.) 20:16	06:53 21:19
6	09:04 16:09	15:10 (1.5.) 15:27 (1.5.)	08:20 17:11	07:13 18:13	17:29 (1.2.) 20:18	06:50 21:21
7	09:04 16:10	15:10 (1.5.) 15:29 (1.5.)	08:18 17:13	07:10 18:15	17:28 (1.2.) 20:20	06:47 21:23
8	09:03 16:12	15:10 (1.5.) 15:30 (1.5.)	08:16 17:15	07:07 18:17	17:27 (1.2.) 20:22	06:45 21:25
9	09:02 16:13	15:10 (1.5.) 15:32 (1.5.)	08:13 17:17	07:05 18:19	17:28 (1.2.) 20:25	06:42 21:27
10	09:01 16:15	15:11 (1.5.) 15:32 (1.5.)	08:11 17:20	07:02 18:22	17:28 (1.2.) 20:27	06:39 21:29
11	09:01 16:17	15:10 (1.5.) 15:32 (1.5.)	08:09 17:22	07:00 18:24	17:28 (1.2.) 20:29	06:37 21:31
12	09:00 16:19	15:11 (1.5.) 15:33 (1.5.)	08:07 17:24	06:57 18:26	17:29 (1.2.) 20:31	06:34 21:33
13	08:59 16:20	15:12 (1.5.) 15:33 (1.5.)	08:05 17:26	06:54 18:28	17:31 (1.2.) 20:33	06:32 21:35
14	08:58 16:22	15:11 (1.5.) 15:33 (1.5.)	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37
15	08:56 16:24	15:12 (1.5.) 15:34 (1.5.)	08:00 17:31	06:49 18:32	06:26 20:37	05:17 21:39
16	08:55 16:26	15:13 (1.5.) 15:34 (1.5.)	07:58 17:33	06:46 18:34	06:24 20:39	05:15 21:41
17	08:54 16:28	15:13 (1.5.) 15:34 (1.5.)	07:55 17:35	06:44 18:36	06:21 20:41	05:13 21:43
18	08:53 16:30	15:14 (1.5.) 15:33 (1.5.)	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:45
19	08:51 16:32	15:15 (1.5.) 15:34 (1.5.)	07:50 17:40	06:38 18:41	06:16 20:46	05:09 21:46
20	08:50 16:34	15:16 (1.5.) 15:33 (1.5.)	07:48 17:42	06:36 18:43	06:14 20:48	05:07 21:48
21	08:49 16:36	15:16 (1.5.) 15:33 (1.5.)	07:46 17:44	06:33 18:45	06:11 20:50	05:06 21:50
22	08:47 16:38	15:18 (1.5.) 15:33 (1.5.)	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52
23	08:46 16:40	15:20 (1.5.) 15:32 (1.5.)	07:41 17:49	06:27 18:49	06:06 20:54	05:02 21:54
24	08:44 16:42	15:22 (1.5.) 15:30 (1.5.)	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55
25	08:42 16:44		07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57
26	08:41 16:46		07:33 17:55	06:19 18:55	05:59 21:00	04:58 21:59
27	08:39 16:48		07:31 17:58	06:17 18:57	05:56 21:02	04:56 22:00
28	08:37 16:51		07:28 18:00	06:14 18:59	05:54 21:04	04:55 22:02
29	08:36 16:53			07:11 20:02	05:51 21:06	04:53 22:04
30	08:34 16:55			07:09 20:04	05:49 21:09	04:52 22:05
31	08:32 16:57			07:06 20:06		04:51 22:07
Potential sun hours	235	266	366	426	508	529
Total, worst case	423		164			
Sun reduction	0.18		0.40			
Oper. time red.	0.99		0.99			
Wind dir. red.	0.66		0.67			
Total reduction	0.12		0.26			
Total, real	49		43			

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:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Vilniš i - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (95)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44	05:30	06:32	07:32	18:10 (1.2.)	07:38
	22:25	21:43	20:29	19:08	12 18:22 (1.2.)	16:50
2	04:45	05:32	06:34	07:34	18:08 (1.2.)	07:40
	22:24	21:41	20:26	19:06	15 18:23 (1.2.)	16:48
3	04:46	05:34	06:36	07:36	18:06 (1.2.)	07:42
	22:24	21:39	20:24	19:03	18 18:24 (1.2.)	16:46
4	04:46	05:36	06:38	07:38	18:05 (1.2.)	07:44
	22:23	21:37	20:21	19:00	19 18:24 (1.2.)	16:44
5	04:47	05:38	06:40	07:40	18:04 (1.2.)	07:46
	22:22	21:35	20:18	18:58	20 18:24 (1.2.)	16:42
6	04:49	05:40	06:42	07:42	18:04 (1.2.)	07:49
	22:22	21:33	20:16	18:55	20 18:24 (1.2.)	16:39
7	04:50	05:41	06:44	07:44	18:04 (1.2.)	07:51
	22:21	21:30	20:13	18:52	17 18:21 (1.2.)	16:37
8	04:51	05:43	06:46	07:46	18:04 (1.2.)	07:53
	22:20	21:28	20:10	18:50	14 18:18 (1.2.)	16:35
9	04:52	05:45	06:48	07:48	18:04 (1.2.)	07:55
	22:19	21:26	20:08	18:47	11 18:15 (1.2.)	16:33
10	04:53	05:47	06:50	07:51	18:05 (1.2.)	07:57
	22:18	21:24	20:05	18:44	8 18:13 (1.2.)	16:31
11	04:55	05:49	06:52	07:53	18:07 (1.2.)	07:59
	22:17	21:21	20:02	18:42	4 18:11 (1.2.)	16:29
12	04:56	05:51	06:54	07:55	18:02	08:02
	22:16	21:19	20:00	18:39	16:27	15:52
13	04:57	05:53	06:56	07:57	18:04	08:04
	22:15	21:17	19:57	18:37	16:25	15:52
14	04:59	05:55	06:58	07:59	18:06	08:06
	22:13	21:14	19:54	18:34	16:24	15:52
15	05:00	05:57	07:00	08:01	18:08	08:08
	22:12	21:12	19:51	18:31	16:22	15:52
16	05:02	05:59	07:02	08:03	18:10	09:00
	22:11	21:09	19:49	18:29	16:20	15:52
17	05:03	06:02	07:04	08:05	18:12	09:01
	22:09	21:07	19:46	18:26	16:18	15:52
18	05:05	06:04	07:06	08:07	18:14	09:02
	22:08	21:05	19:43	18:24	16:17	15:52
19	05:06	06:06	07:08	08:10	18:16	09:03
	22:06	21:02	19:41	18:21	16:15	15:52
20	05:08	06:08	07:10	08:12	18:19	09:03
	22:05	21:00	19:38	18:19	16:13	15:52
21	05:10	06:10	07:12	08:14	18:21	09:04
	22:03	20:57	19:35	18:16	16:12	15:53
22	05:11	06:12	07:14	08:16	18:23	09:05
	22:02	20:55	19:32	18:14	16:10	15:53
23	05:13	06:14	07:16	08:18	18:25	09:05
	22:00	20:52	19:30	18:11	16:09	15:54
24	05:15	06:16	07:18	08:20	18:27	09:05
	21:58	20:50	19:27	18:09	16:07	15:54
25	05:17	06:18	07:20	07:22	18:29	09:06
	21:56	20:47	19:24	17:07	16:06	15:55
26	05:19	06:20	07:22	07:25	18:30	09:06
	21:55	20:45	19:22	17:04	16:05	15:56
27	05:20	06:22	07:24	07:27	18:32	09:06
	21:53	20:42	19:19	17:02	16:03	15:57
28	05:22	06:24	07:26	07:29	18:34	09:06
	21:51	20:39	19:16	16:59	16:02	15:58
29	05:24	06:26	07:28	07:31	18:36	09:06
	21:49	20:37	19:14	16:57	16:01	15:59
30	05:26	06:28	07:30	07:33	18:38	09:06
	21:47	20:34	19:11	7 18:20 (1.2.)	16:00	22 15:14 (1.5.)
31	05:28	06:30		07:35		09:06
	21:45	20:32		16:53		16:01
Potential sun hours	530	470	385	323	247	215
Total, worst case			7	158	235	314
Sun reduction			0.46	0.31	0.16	0.10
Oper. time red.			0.99	0.99	0.99	0.99
Wind dir. red.			0.67	0.67	0.66	0.66
Total reduction			0.31	0.20	0.10	0.07
Total, real			2	32	24	21

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Vizbuli - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (21)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:10	04:50 22:08	04:44 22:24	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:51	08:39 15:59
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	04:49 22:09	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:41 15:59
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	04:48 22:11	04:46 22:23	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:58
4	09:05 16:06	08:24 17:07	07:18 18:09	06:55 20:14	05:40 21:17	04:47 22:12	04:47 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:44 15:57
5	09:04 16:08	08:22 17:09	07:15 18:11	06:53 20:16	05:38 21:19	04:46 22:13	04:48 22:22	05:38 21:35	06:40 20:18	07:40 18:58	07:46 16:42	08:46 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:36 21:21	04:45 22:14	04:49 22:21	05:40 21:32	06:42 20:16	07:42 18:55	07:49 16:40	08:47 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:47 20:20	05:34 21:23	04:44 22:15	04:50 22:20	05:42 21:30	06:44 20:13	07:44 18:52	07:51 16:38	08:49 15:55
8	09:03 16:12	08:16 17:16	07:08 18:17	06:45 20:22	05:31 21:25	04:44 22:17	04:51 22:20	05:44 21:28	06:46 20:10	07:46 18:50	07:53 16:36	08:50 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:43 22:18	04:53 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:34	08:52 15:54
10	09:01 16:16	08:11 17:20	07:02 18:22	06:40 20:27	05:27 21:29	04:42 22:19	04:54 22:18	05:48 21:23	06:50 20:05	07:51 18:45	07:57 16:32	08:53 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:42 22:19	04:55 22:17	05:50 21:21	06:52 20:02	07:53 18:42	07:59 16:30	08:54 15:53
12	08:59 16:19	08:07 17:25	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:20	04:56 22:15	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:28	08:56 15:53
13	08:58 16:21	08:04 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:41 22:21	04:58 22:14	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:26	08:57 15:52
14	08:57 16:23	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:22	04:59 22:13	05:56 21:14	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:56 16:24	08:00 17:31	06:49 18:32	06:27 20:37	05:17 21:39	04:40 22:23	05:01 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:55 16:26	07:58 17:34	06:46 18:34	06:24 20:39	05:15 21:41	04:40 22:23	05:02 22:10	06:00 21:09	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:41	05:13 21:43	04:40 22:24	05:04 22:09	06:02 21:07	07:04 19:46	08:05 18:27	08:12 16:19	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:43	05:11 21:44	04:40 22:24	05:05 22:08	06:04 21:05	07:06 19:43	08:07 18:24	08:14 16:17	09:02 15:52
19	08:51 16:32	07:50 17:40	06:38 18:41	06:16 20:45	05:10 21:46	04:40 22:25	05:07 22:06	06:06 21:02	07:08 19:41	08:10 18:22	08:16 16:15	09:02 15:53
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:08 21:48	04:40 22:25	05:09 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:18 16:14	09:03 15:53
21	08:48 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:40 22:25	05:10 22:03	06:10 20:57	07:12 19:35	08:14 18:17	08:20 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:40 22:25	05:12 22:01	06:12 20:55	07:14 19:33	08:16 18:14	08:22 16:11	09:04 15:54
23	08:45 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:53	04:40 22:26	05:14 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:24 16:09	09:05 15:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:55	04:40 22:26	05:15 21:58	06:16 20:50	07:18 19:27	08:20 18:09	08:26 16:08	09:05 15:55
25	08:42 16:45	07:36 17:54	06:22 18:53	06:01 20:58	05:00 21:57	04:41 22:26	05:17 21:56	06:18 20:47	07:20 19:24	07:22 17:07	08:28 16:06	09:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:54	06:20 20:44	07:22 19:22	07:25 17:04	08:30 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:57	05:57 21:02	04:57 22:00	04:42 22:25	05:21 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:32 16:04	09:06 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 21:04	04:55 22:02	04:42 22:25	05:23 21:51	06:24 20:39	07:26 19:16	07:29 17:00	08:34 16:03	09:06 15:58
29	08:35 16:53		07:11 20:02	05:52 21:06	04:54 22:03	04:43 22:25	05:25 21:49	06:26 20:37	07:28 19:14	07:31 16:57	08:36 16:02	09:06 15:59
30	08:34 16:55		07:09 20:04	05:49 21:08	04:53 22:05	04:44 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:33 16:55	08:38 16:00	09:06 16:00
31	08:32 16:58		07:06 20:06	05:51 22:06	04:51 22:06	05:28 21:45	05:28 20:32	06:30 20:32	07:35 16:53	07:35 16:53	09:06 16:01	
Potential sun hours	235	266	366	426	508	529	529	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Vitini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (63)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:02	08:30 17:00	07:26 18:02	07:03 20:08	05:47 21:11	04:50 22:08	04:44 22:25	05:30 21:43	06:32 20:29	07:32 19:08	07:38 16:50	08:40 15:59
2	09:06 16:03	08:28 17:02	07:23 18:04	07:01 20:10	05:45 21:13	04:49 22:10	04:45 22:24	05:32 21:41	06:34 20:26	07:34 19:06	07:40 16:48	08:42 15:58
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	04:48 22:11	04:46 22:24	05:34 21:39	06:36 20:24	07:36 19:03	07:42 16:46	08:43 15:57
4	09:06 16:06	08:24 17:06	07:18 18:09	06:55 20:14	05:40 21:17	04:47 22:12	04:46 22:23	05:36 21:37	06:38 20:21	07:38 19:00	07:44 16:44	08:45 15:56
5	09:05 16:07	08:22 17:09	07:16 18:11	06:53 20:16	05:38 21:19	04:46 22:14	04:47 22:23	05:38 21:35	06:40 20:19	07:40 18:58	07:47 16:42	08:46 15:56
6	09:05 16:09	08:20 17:11	07:13 18:13	06:50 20:18	05:35 21:21	04:45 22:15	04:49 22:22	05:40 21:33	06:42 20:16	07:42 18:55	07:49 16:39	08:48 15:55
7	09:04 16:10	08:18 17:13	07:10 18:15	06:47 20:21	05:33 21:23	04:44 22:16	04:50 22:21	05:42 21:31	06:44 20:13	07:45 18:52	07:51 16:37	08:50 15:54
8	09:03 16:12	08:16 17:15	07:08 18:17	06:45 20:23	05:31 21:25	04:43 22:17	04:51 22:20	05:44 21:28	06:46 20:10	07:47 18:50	07:53 16:35	08:51 15:54
9	09:03 16:13	08:14 17:18	07:05 18:20	06:42 20:25	05:29 21:27	04:42 22:18	04:52 22:19	05:46 21:26	06:48 20:08	07:49 18:47	07:55 16:33	08:52 15:53
10	09:02 16:15	08:11 17:20	07:02 18:22	06:39 20:27	05:27 21:29	04:42 22:19	04:53 22:18	05:48 21:24	06:50 20:05	07:51 18:45	07:58 16:31	08:54 15:53
11	09:01 16:17	08:09 17:22	07:00 18:24	06:37 20:29	05:25 21:31	04:41 22:20	04:55 22:17	05:50 21:22	06:52 20:02	07:53 18:42	08:00 16:29	08:55 15:52
12	09:00 16:19	08:07 17:24	06:57 18:26	06:34 20:31	05:23 21:33	04:41 22:21	04:56 22:16	05:52 21:19	06:54 20:00	07:55 18:39	08:02 16:27	08:56 15:52
13	08:59 16:20	08:05 17:27	06:54 18:28	06:32 20:33	05:21 21:35	04:40 22:22	04:57 22:15	05:54 21:17	06:56 19:57	07:57 18:37	08:04 16:25	08:57 15:52
14	08:58 16:22	08:02 17:29	06:52 18:30	06:29 20:35	05:19 21:37	04:40 22:23	04:59 22:14	05:56 21:15	06:58 19:54	07:59 18:34	08:06 16:24	08:58 15:52
15	08:57 16:24	08:00 17:31	06:49 18:32	06:26 20:37	05:17 21:39	04:40 22:23	05:00 22:12	05:58 21:12	07:00 19:52	08:01 18:32	08:08 16:22	08:59 15:52
16	08:56 16:26	07:58 17:33	06:46 18:34	06:24 20:39	05:15 21:41	04:39 22:24	05:02 22:11	06:00 21:10	07:02 19:49	08:03 18:29	08:10 16:20	09:00 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 20:42	05:13 21:43	04:39 22:24	05:03 22:10	06:02 21:07	07:04 19:46	08:05 18:26	08:13 16:18	09:01 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 20:44	05:11 21:45	04:39 22:25	05:05 22:08	06:04 21:05	07:06 19:43	08:08 18:24	08:15 16:17	09:02 15:52
19	08:52 16:32	07:51 17:40	06:38 18:41	06:16 20:46	05:09 21:47	04:39 22:25	05:06 22:07	06:06 21:02	07:08 19:41	08:10 18:21	08:17 16:15	09:03 15:52
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 20:48	05:07 21:49	04:39 22:26	05:08 22:05	06:08 21:00	07:10 19:38	08:12 18:19	08:19 16:13	09:04 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:39 22:26	05:10 22:04	06:10 20:57	07:12 19:35	08:14 18:16	08:21 16:12	09:04 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:39 22:26	05:12 22:02	06:12 20:55	07:14 19:33	08:16 18:14	08:23 16:10	09:05 15:53
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:02 21:54	04:40 22:26	05:13 22:00	06:14 20:52	07:16 19:30	08:18 18:12	08:25 16:09	09:05 15:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 20:56	05:01 21:56	04:40 22:26	05:15 21:59	06:16 20:50	07:18 19:27	08:20 18:09	08:27 16:07	09:06 15:54
25	08:43 16:44	07:36 17:53	06:22 18:53	06:01 20:58	04:59 21:57	04:40 22:26	05:17 21:57	06:18 20:47	07:20 19:25	07:23 17:07	08:29 16:06	09:06 15:55
26	08:41 16:46	07:33 17:56	06:20 18:55	05:59 21:00	04:58 21:59	04:41 22:26	05:19 21:55	06:20 20:45	07:22 19:22	07:25 17:04	08:31 16:05	09:06 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:56 21:02	04:56 22:01	04:41 22:26	05:20 21:53	06:22 20:42	07:24 19:19	07:27 17:02	08:33 16:03	09:07 15:57
28	08:38 16:51	07:28 18:00	06:14 19:00	05:54 21:05	04:55 22:02	04:42 22:26	05:22 21:51	06:24 20:40	07:26 19:16	07:29 17:00	08:34 16:02	09:07 15:58
29	08:36 16:53		07:11 20:02	05:52 21:07	04:53 22:04	04:42 22:26	05:24 21:49	06:26 20:37	07:28 19:14	07:31 16:57	08:36 16:01	09:07 15:59
30	08:34 16:55		07:09 20:04	05:49 21:09	04:52 22:05	04:43 22:25	05:26 21:47	06:28 20:34	07:30 19:11	07:34 16:55	08:38 16:00	09:07 16:00
31	08:32 16:57		07:06 20:06	04:51 22:07	04:51 22:07	04:51 22:07	05:28 21:45	06:30 20:32	07:36 16:53	07:36 16:53	08:36 16:01	09:07 16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: neapdz. (blakus "Naftas baze") - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (2)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:04	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:39
	16:03	17:00	18:02	20:08	21:11	22:08	22:24	21:43	20:29	19:08	16:51	16:00
2	09:06	08:28	07:23	07:01	05:45	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:04	17:02	18:05	20:10	21:13	22:09	22:24	21:41	20:26	19:06	16:48	15:59
3	09:05	08:26	07:21	06:58	05:43	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:23	21:39	20:24	19:03	16:46	15:58
4	09:05	08:24	07:18	06:56	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:44
	16:07	17:07	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:57
5	09:05	08:22	07:15	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:46	08:46
	16:08	17:09	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:42	15:56
6	09:04	08:20	07:13	06:50	05:36	04:45	04:49	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:40	15:55
7	09:03	08:18	07:10	06:48	05:34	04:44	04:50	05:42	06:44	07:44	07:51	08:49
	16:11	17:13	18:15	20:20	21:23	22:15	22:20	21:30	20:13	18:53	16:38	15:55
8	09:03	08:16	07:08	06:45	05:31	04:44	04:51	05:44	06:46	07:47	07:53	08:50
	16:12	17:16	18:18	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:36	15:54
9	09:02	08:13	07:05	06:42	05:29	04:43	04:53	05:46	06:48	07:49	07:55	08:52
	16:14	17:18	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:34	15:54
10	09:01	08:11	07:02	06:40	05:27	04:42	04:54	05:48	06:50	07:51	07:57	08:53
	16:16	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:45	16:32	15:53
11	09:00	08:09	07:00	06:37	05:25	04:42	04:55	05:50	06:52	07:53	07:59	08:54
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:30	15:53
12	08:59	08:07	06:57	06:34	05:23	04:41	04:57	05:52	06:54	07:55	08:02	08:56
	16:19	17:25	18:26	20:31	21:33	22:20	22:15	21:19	20:00	18:39	16:28	15:53
13	08:58	08:05	06:54	06:32	05:21	04:41	04:58	05:54	06:56	07:57	08:04	08:57
	16:21	17:27	18:28	20:33	21:35	22:21	22:14	21:17	19:57	18:37	16:26	15:53
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:23	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:27	05:17	04:40	05:01	05:58	07:00	08:01	08:08	08:59
	16:25	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:40	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:34	18:35	20:39	21:41	22:23	22:10	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:22	05:13	04:40	05:04	06:02	07:04	08:05	08:12	09:01
	16:28	17:36	18:37	20:41	21:43	22:24	22:09	21:07	19:46	18:27	16:19	15:52
18	08:53	07:53	06:41	06:19	05:11	04:40	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:44	22:24	22:08	21:05	19:43	18:24	16:17	15:53
19	08:51	07:51	06:38	06:16	05:10	04:40	05:07	06:06	07:08	08:10	08:16	09:02
	16:32	17:40	18:41	20:46	21:46	22:25	22:06	21:02	19:41	18:22	16:15	15:53
20	08:50	07:48	06:36	06:14	05:08	04:40	05:09	06:08	07:10	08:12	08:18	09:03
	16:34	17:43	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:14	15:53
21	08:49	07:46	06:33	06:11	05:06	04:40	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:45	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:17	16:12	15:54
22	08:47	07:43	06:30	06:09	05:05	04:40	05:12	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:25	22:01	20:55	19:33	18:14	16:11	15:54
23	08:46	07:41	06:28	06:06	05:03	04:40	05:14	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:53	22:26	22:00	20:52	19:30	18:12	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:16	06:16	07:18	08:20	08:26	09:05
	16:43	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:08	15:55
25	08:42	07:36	06:22	06:02	05:00	04:41	05:17	06:18	07:20	07:22	08:28	09:06
	16:45	17:54	18:53	20:58	21:57	22:26	21:56	20:47	19:25	17:07	16:07	15:56
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:30	09:06
	16:47	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:05	16:05	15:57
27	08:39	07:31	06:17	05:57	04:57	04:42	05:21	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:58	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:23	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:25	21:51	20:39	19:16	17:00	16:03	15:58
29	08:35		07:12	05:52	04:54	04:43	05:25	06:26	07:28	07:31	08:36	09:06
	16:53		20:02	21:06	22:03	22:25	21:49	20:37	19:14	16:58	16:02	15:59
30	08:34		07:09	05:50	04:53	04:44	05:26	06:28	07:30	07:33	08:38	09:06
	16:56		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:01	16:00
31	08:32		07:06		04:52		05:28	06:30		07:35		09:06
	16:58		20:06		22:06		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	529	529	469	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Abeles - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (44)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	09:07 16:02	08:30 17:00	07:26 18:02	07:04 20:08	05:47 21:11	04:50 22:08
2	09:06 16:04	08:28 17:02	07:23 18:05	07:01 20:10	05:45 21:13	04:49 22:10
3	09:06 16:05	08:26 17:04	07:21 18:07	06:58 20:12	05:42 21:15	04:48 22:11
4	09:06 16:06	08:24 17:07	07:18 18:09	06:56 20:14	05:40 21:17	04:47 22:12
5	09:05 16:08	08:22 17:09	07:16 18:11	06:53 20:17	05:38 21:19	04:46 22:14
6	09:05 16:09	08:20 17:11	07:13 18:13	07:39 (1.4.) 07:46 (1.4.)	06:50 20:19	05:36 21:21
7	09:04 16:11	08:18 17:13	07:10 18:15	07:36 (1.4.) 07:48 (1.4.)	06:48 20:21	05:33 21:23
8	09:03 16:12	08:16 17:16	07:08 18:18	07:34 (1.4.) 07:50 (1.4.)	06:45 20:23	05:31 21:25
9	09:03 16:14	08:14 17:18	07:05 18:20	07:31 (1.4.) 07:50 (1.4.)	06:42 20:25	05:29 21:27
10	09:02 16:15	08:12 17:20	07:03 18:22	07:29 (1.4.) 07:50 (1.4.)	06:40 20:27	05:27 21:29
11	09:01 16:17	08:09 17:22	07:00 18:24	07:29 (1.4.) 07:51 (1.4.)	06:37 20:29	05:25 21:31
12	09:00 16:19	08:07 17:25	06:57 18:26	07:28 (1.4.) 07:51 (1.4.)	06:34 20:31	05:23 21:33
13	08:59 16:21	08:05 17:27	06:55 18:28	07:28 (1.4.) 07:50 (1.4.)	06:32 20:33	05:21 21:35
14	08:58 16:22	08:03 17:29	06:52 18:30	07:28 (1.4.) 07:49 (1.4.)	06:29 20:35	05:19 21:37
15	08:57 16:24	08:00 17:31	06:49 18:33	07:29 (1.4.) 07:49 (1.4.)	06:27 20:37	05:17 21:39
16	08:56 16:26	07:58 17:34	06:47 18:35	07:29 (1.4.) 07:48 (1.4.)	06:24 20:40	05:15 21:41
17	08:54 16:28	07:56 17:36	06:44 18:37	07:30 (1.4.) 07:46 (1.4.)	06:22 20:42	05:13 21:43
18	08:53 16:30	07:53 17:38	06:41 18:39	07:32 (1.4.) 07:45 (1.4.)	06:19 20:44	05:11 21:45
19	08:52 16:32	07:51 17:40	06:39 18:41	07:34 (1.4.) 07:41 (1.4.)	06:16 20:46	05:09 21:47
20	08:50 16:34	07:48 17:43	06:36 18:43	06:14 20:48	05:08 21:49	04:39 22:26
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 20:50	05:06 21:50	04:39 22:26
22	08:48 16:38	07:44 17:47	06:30 18:47	06:09 20:52	05:04 21:52	04:40 22:26
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 20:54	05:03 21:54	04:40 22:26
24	08:44 16:42	07:39 17:51	06:25 18:51	06:04 20:56	05:01 21:56	04:40 22:26
25	08:43 16:44	07:36 17:54	06:22 18:54	06:01 20:58	05:00 21:57	04:41 22:26
26	08:41 16:47	07:34 17:56	06:20 18:56	05:59 21:00	04:58 21:59	04:41 22:26
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 21:03	04:57 22:01	04:41 22:26
28	08:38 16:51	07:28 18:00	06:14 19:00	05:54 21:05	04:55 22:02	04:42 22:26
29	08:36 16:53		07:12 20:02	05:52 21:07	04:54 22:04	04:43 22:26
30	08:34 16:55		07:09 20:04	05:49 21:09	04:52 22:05	04:43 22:25
31	08:32 16:58		07:06 20:06		04:51 22:07	
Potential sun hours	235	266	366	426	508	529
Total, worst case			238	235		
Sun reduction			0.40	0.57		
Oper. time red.			0.99	0.99		
Wind dir. red.			0.63	0.66		
Total reduction			0.25	0.37		
Total, real			59	88		

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

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

SHADOW - Calendar

Shadow receptor: Abeles - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (44)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	04:44 22:25	05:30 21:43	06:32 20:29	07:02 (1.3.) 19:09	07:32 16:51	08:07 (1.4.) 15:59
2	04:45 22:24	05:32 21:41	06:34 20:27	07:04 (1.3.) 19:06	07:34 16:48	08:07 (1.4.) 15:58
3	04:46 22:24	05:34 21:39	06:36 20:24	07:06 (1.3.) 19:03	07:36 16:42	08:07 (1.4.) 15:58
4	04:47 22:23	05:36 21:37	06:38 20:21	07:08 (1.3.) 19:01	07:39 16:44	08:07 (1.4.) 15:57
5	04:48 22:23	05:38 21:35	06:40 20:19	07:10 (1.3.) 18:58	07:41 16:42	08:09 (1.4.) 15:56
6	04:49 22:22	05:40 21:33	06:42 20:16	07:12 (1.3.) 18:55	07:43 16:40	08:11 (1.4.) 15:55
7	04:50 22:21	05:42 21:31	06:44 20:13	07:14 (1.3.) 18:53	07:45 16:38	08:14 (1.4.) 15:55
8	04:51 22:20	05:44 21:28	06:46 20:11	07:16 (1.3.) 18:50	07:47 16:36	08:16 (1.4.) 15:54
9	04:52 22:19	05:46 21:26	06:48 20:08	07:18 (1.3.) 18:47	07:49 16:34	08:18 (1.4.) 15:54
10	04:54 22:18	05:48 21:24	06:50 20:05	07:20 (1.3.) 18:45	07:51 16:32	08:20 (1.4.) 15:53
11	04:55 22:17	05:50 21:22	06:52 20:03	07:22 (1.3.) 18:42	07:53 16:30	08:22 (1.4.) 15:53
12	04:56 22:16	05:52 21:19	06:54 20:00	07:24 (1.3.) 18:39	07:55 16:28	08:24 (1.4.) 15:52
13	04:58 22:15	05:54 21:17	06:56 19:57	07:26 (1.3.) 18:37	07:57 16:26	08:26 (1.4.) 15:52
14	04:59 22:14	05:56 21:15	06:58 19:54	07:28 (1.3.) 18:34	07:59 16:24	08:28 (1.4.) 15:52
15	05:01 22:12	05:58 21:12	07:00 19:52	07:30 (1.3.) 18:32	08:01 16:22	08:30 (1.4.) 15:52
16	05:02 22:11	06:00 21:10	07:02 19:49	07:32 (1.3.) 18:30	08:03 16:20	08:32 (1.4.) 15:52
17	05:04 22:10	06:02 21:07	07:04 19:46	07:34 (1.3.) 18:27	08:06 16:19	08:34 (1.4.) 15:52
18	05:05 22:08	06:04 21:05	07:06 19:44	07:36 (1.3.) 18:24	08:08 16:17	08:36 (1.4.) 15:52
19	05:07 22:07	06:06 21:02	07:08 19:41	07:38 (1.3.) 18:22	08:10 16:15	08:38 (1.4.) 15:53
20	05:08 22:05	06:08 21:00	07:10 19:38	07:40 (1.3.) 18:19	08:12 16:14	08:40 (1.4.) 15:53
21	05:10 22:04	06:10 20:58	07:12 19:36	07:42 (1.3.) 18:17	08:14 16:12	08:42 (1.4.) 15:53
22	05:12 22:02	06:12 20:55	07:14 19:33	07:44 (1.3.) 18:14	08:16 16:11	08:44 (1.4.) 15:54
23	05:14 22:00	06:14 20:52	07:16 19:30	07:46 (1.3.) 18:12	08:18 16:09	08:46 (1.4.) 15:54
24	05:15 21:59	06:16 20:50	07:18 19:27	07:48 (1.3.) 18:09	08:20 16:08	08:48 (1.4.) 15:55
25	05:17 21:57	06:18 20:47	07:20 19:25	07:50 (1.3.) 18:07	08:22 16:06	08:50 (1.4.) 15:55
26	05:19 21:55	06:20 20:45	07:22 19:22	07:52 (1.3.) 18:05	08:24 16:05	08:52 (1.4.) 15:56
27	05:21 21:53	06:22 20:42	07:24 19:19	07:54 (1.3.) 18:03	08:26 16:04	08:54 (1.4.) 15:57
28	05:23 21:51	06:24 20:40	07:26 19:17	07:56 (1.3.) 18:01	08:28 16:03	08:56 (1.4.) 15:58
29	05:24 21:49	06:26 20:37	07:28 19:14	07:58 (1.3.) 17:59	08:30 16:01	08:58 (1.4.) 15:59
30	05:26 21:47	06:28 20:34	07:30 19:11	08:00 (1.3.) 17:57	08:32 16:00	09:00 (1.4.) 16:00
31	05:28 21:45	06:30 20:32	07:32 19:09	08:02 (1.3.) 17:55	08:34 16:00	09:02 (1.4.) 16:01
Potential sun hours	530	470	385	323	247	215
Total, worst case		196	150	133		
Sun reduction		0.52	0.46	0.31		
Oper. time red.		0.99	0.99	0.99		
Wind dir. red.		0.66	0.64	0.63		
Total reduction		0.34	0.29	0.19		
Total, real		66	44	26		

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:

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Abeles - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (69)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:07	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:42
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:07	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:06	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:13	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:16	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:47	08:47
	16:07	17:08	18:11	20:16	21:19	22:14	22:23	21:35	20:19	18:58	16:42	15:56
6	09:05	08:20	07:13	06:50	05:35	04:45	04:48	05:40	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:19	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:45	07:51	08:50
	16:10	17:13	18:15	20:21	21:23	22:16	22:21	21:31	20:13	18:52	16:37	15:54
8	09:03	08:16	07:08	06:45	05:31	04:43	04:51	05:43	06:46	07:47	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:11	18:50	16:35	15:54
9	09:03	08:14	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:20	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:02	08:12	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:58	08:54
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:22	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:23	22:14	21:15	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:58	07:00	08:01	08:08	09:00
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:52	18:32	16:22	15:52
16	08:56	07:58	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:13	09:01
	16:28	17:36	18:37	20:42	21:43	22:24	22:10	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:08	08:15	09:02
	16:30	17:38	18:39	20:44	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:07	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:04
	16:34	17:42	18:43	20:48	21:49	22:26	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:04	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:33	18:14	16:10	15:53
23	08:46	07:41	06:28	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:56	22:26	21:59	20:50	19:27	18:09	16:07	15:54
25	08:43	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:23	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:25	17:07	16:06	15:55
26	08:41	07:33	06:20	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:31	09:06
	16:46	17:56	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:33	09:07
	16:48	17:58	18:58	21:03	22:01	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:38	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:35	09:07
	16:51	18:00	19:00	21:05	22:02	22:26	21:51	20:40	19:16	17:00	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:07	22:04	22:26	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:34	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:07
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	234	266	366	426	509	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Abelites - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (94)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:26	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:38	08:40
	16:02	16:59	18:02	20:08	21:11	22:08	22:25	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:13	22:10	22:24	21:41	20:26	19:06	16:48	15:58
3	09:06	08:26	07:21	06:58	05:42	04:47	04:45	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:11	22:24	21:39	20:24	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:46	04:46	05:36	06:38	07:38	07:44	08:45
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:05	08:22	07:15	06:53	05:38	04:46	04:47	05:38	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:35	20:18	18:58	16:41	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:48	05:39	06:42	07:42	07:49	08:48
	16:09	17:11	18:13	20:18	21:21	22:15	22:22	21:33	20:16	18:55	16:39	15:55
7	09:04	08:18	07:10	06:47	05:33	04:44	04:50	05:41	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:16	22:21	21:30	20:13	18:52	16:37	15:54
8	09:03	08:16	07:07	06:45	05:31	04:43	04:51	05:43	06:46	07:46	07:53	08:51
	16:12	17:15	18:17	20:23	21:25	22:17	22:20	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:42	04:52	05:45	06:48	07:49	07:55	08:52
	16:13	17:17	18:19	20:25	21:27	22:18	22:19	21:26	20:08	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:47	06:50	07:51	07:57	08:53
	16:15	17:20	18:22	20:27	21:29	22:19	22:18	21:24	20:05	18:44	16:31	15:53
11	09:01	08:09	07:00	06:37	05:25	04:41	04:55	05:49	06:52	07:53	08:00	08:55
	16:17	17:22	18:24	20:29	21:31	22:20	22:17	21:21	20:02	18:42	16:29	15:52
12	09:00	08:07	06:57	06:34	05:23	04:41	04:56	05:51	06:54	07:55	08:02	08:56
	16:19	17:24	18:26	20:31	21:33	22:21	22:16	21:19	20:00	18:39	16:27	15:52
13	08:59	08:05	06:54	06:32	05:21	04:40	04:57	05:53	06:56	07:57	08:04	08:57
	16:20	17:26	18:28	20:33	21:35	22:22	22:15	21:17	19:57	18:37	16:25	15:52
14	08:58	08:02	06:52	06:29	05:19	04:40	04:59	05:55	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:57	08:00	06:49	06:26	05:17	04:39	05:00	05:57	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:58	06:46	06:24	05:15	04:39	05:02	05:59	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:24	22:11	21:10	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:01	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:43	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:39	20:43	21:45	22:25	22:08	21:05	19:43	18:24	16:17	15:52
19	08:52	07:51	06:38	06:16	05:09	04:39	05:06	06:06	07:08	08:10	08:17	09:03
	16:32	17:40	18:41	20:46	21:47	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:36	06:14	05:07	04:39	05:08	06:08	07:10	08:12	08:19	09:03
	16:34	17:42	18:43	20:48	21:48	22:25	22:05	21:00	19:38	18:19	16:13	15:52
21	08:49	07:46	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:21	09:04
	16:36	17:44	18:45	20:50	21:50	22:26	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:11	06:12	07:14	08:16	08:23	09:05
	16:38	17:47	18:47	20:52	21:52	22:26	22:02	20:55	19:32	18:14	16:10	15:53
23	08:46	07:41	06:27	06:06	05:02	04:39	05:13	06:14	07:16	08:18	08:25	09:05
	16:40	17:49	18:49	20:54	21:54	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:27	09:06
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:50	19:27	18:09	16:07	15:54
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:29	09:06
	16:44	17:53	18:53	20:58	21:57	22:26	21:57	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:25	08:30	09:06
	16:46	17:55	18:55	21:00	21:59	22:26	21:55	20:45	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:48	17:58	18:57	21:02	22:00	22:26	21:53	20:42	19:19	17:02	16:03	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	19:00	21:04	22:02	22:26	21:51	20:39	19:16	16:59	16:02	15:58
29	08:36		07:11	05:51	04:53	04:42	05:24	06:26	07:28	07:31	08:36	09:07
	16:53		20:02	21:06	22:04	22:25	21:49	20:37	19:14	16:57	16:01	15:58
30	08:34		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:07
	16:55		20:04	21:09	22:05	22:25	21:47	20:34	19:11	16:55	16:00	15:59
31	08:32		07:06		04:51		05:28	06:30		07:36		09:06
	16:57		20:06		22:07		21:45	20:32		16:53		16:01
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

VPSP wind farm

Description:

VPSP wind farm

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Anna / anna@environment.lv

Calculated:

02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Arzemnieki - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (28)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06	08:30	07:25	07:03	05:47	04:50	04:44	05:30	06:32	07:32	07:37	08:39
	16:02	17:00	18:02	20:08	21:10	22:08	22:24	21:43	20:29	19:08	16:50	15:59
2	09:06	08:28	07:23	07:01	05:44	04:49	04:45	05:32	06:34	07:34	07:40	08:41
	16:03	17:02	18:04	20:10	21:12	22:09	22:24	21:41	20:26	19:05	16:48	15:58
3	09:05	08:26	07:20	06:58	05:42	04:48	04:46	05:34	06:36	07:36	07:42	08:43
	16:05	17:04	18:06	20:12	21:15	22:10	22:23	21:39	20:23	19:03	16:46	15:57
4	09:05	08:24	07:18	06:55	05:40	04:47	04:47	05:36	06:38	07:38	07:44	08:44
	16:06	17:06	18:09	20:14	21:17	22:12	22:23	21:37	20:21	19:00	16:44	15:56
5	09:04	08:22	07:15	06:53	05:38	04:46	04:48	05:38	06:40	07:40	07:46	08:46
	16:07	17:08	18:11	20:16	21:19	22:13	22:22	21:34	20:18	18:57	16:42	15:56
6	09:04	08:20	07:13	06:50	05:35	04:45	04:49	05:40	06:42	07:42	07:48	08:47
	16:09	17:11	18:13	20:18	21:21	22:14	22:21	21:32	20:16	18:55	16:39	15:55
7	09:03	08:18	07:10	06:47	05:33	04:44	04:50	05:42	06:44	07:44	07:51	08:49
	16:10	17:13	18:15	20:20	21:23	22:15	22:20	21:30	20:13	18:52	16:37	15:54
8	09:03	08:15	07:07	06:45	05:31	04:43	04:51	05:44	06:46	07:46	07:53	08:50
	16:12	17:15	18:17	20:22	21:25	22:17	22:19	21:28	20:10	18:50	16:35	15:54
9	09:02	08:13	07:05	06:42	05:29	04:43	04:52	05:46	06:48	07:48	07:55	08:52
	16:14	17:17	18:19	20:24	21:27	22:18	22:19	21:26	20:07	18:47	16:33	15:53
10	09:01	08:11	07:02	06:39	05:27	04:42	04:53	05:48	06:50	07:50	07:57	08:53
	16:15	17:20	18:21	20:27	21:29	22:19	22:18	21:23	20:05	18:44	16:31	15:53
11	09:00	08:09	06:59	06:37	05:25	04:41	04:55	05:50	06:52	07:53	07:59	08:54
	16:17	17:22	18:24	20:29	21:31	22:19	22:17	21:21	20:02	18:42	16:29	15:53
12	08:59	08:07	06:57	06:34	05:23	04:41	04:56	05:52	06:54	07:55	08:01	08:56
	16:19	17:24	18:26	20:31	21:33	22:20	22:15	21:19	19:59	18:39	16:27	15:52
13	08:58	08:04	06:54	06:32	05:21	04:40	04:57	05:54	06:56	07:57	08:04	08:57
	16:20	17:27	18:28	20:33	21:35	22:21	22:14	21:16	19:57	18:37	16:25	15:52
14	08:57	08:02	06:52	06:29	05:19	04:40	04:59	05:56	06:58	07:59	08:06	08:58
	16:22	17:29	18:30	20:35	21:37	22:22	22:13	21:14	19:54	18:34	16:24	15:52
15	08:56	08:00	06:49	06:26	05:17	04:40	05:00	05:58	07:00	08:01	08:08	08:59
	16:24	17:31	18:32	20:37	21:39	22:23	22:12	21:12	19:51	18:31	16:22	15:52
16	08:55	07:57	06:46	06:24	05:15	04:39	05:02	06:00	07:02	08:03	08:10	09:00
	16:26	17:33	18:34	20:39	21:41	22:23	22:10	21:09	19:49	18:29	16:20	15:52
17	08:54	07:55	06:44	06:21	05:13	04:39	05:03	06:02	07:04	08:05	08:12	09:01
	16:28	17:35	18:36	20:41	21:42	22:24	22:09	21:07	19:46	18:26	16:18	15:52
18	08:53	07:53	06:41	06:19	05:11	04:39	05:05	06:04	07:06	08:07	08:14	09:02
	16:30	17:38	18:38	20:43	21:44	22:24	22:08	21:04	19:43	18:24	16:17	15:52
19	08:51	07:50	06:38	06:16	05:09	04:39	05:07	06:06	07:08	08:09	08:16	09:02
	16:32	17:40	18:41	20:45	21:46	22:25	22:06	21:02	19:41	18:21	16:15	15:52
20	08:50	07:48	06:35	06:14	05:08	04:39	05:08	06:08	07:10	08:11	08:18	09:03
	16:34	17:42	18:43	20:47	21:48	22:25	22:05	20:59	19:38	18:19	16:13	15:53
21	08:48	07:45	06:33	06:11	05:06	04:39	05:10	06:10	07:12	08:14	08:20	09:04
	16:36	17:44	18:45	20:50	21:50	22:25	22:03	20:57	19:35	18:16	16:12	15:53
22	08:47	07:43	06:30	06:09	05:04	04:39	05:12	06:12	07:14	08:16	08:22	09:04
	16:38	17:47	18:47	20:52	21:52	22:25	22:01	20:54	19:32	18:14	16:10	15:54
23	08:45	07:41	06:27	06:06	05:02	04:40	05:13	06:14	07:16	08:18	08:24	09:05
	16:40	17:49	18:49	20:54	21:53	22:26	22:00	20:52	19:30	18:11	16:09	15:54
24	08:44	07:38	06:25	06:04	05:01	04:40	05:15	06:16	07:18	08:20	08:26	09:05
	16:42	17:51	18:51	20:56	21:55	22:26	21:58	20:49	19:27	18:09	16:07	15:55
25	08:42	07:36	06:22	06:01	04:59	04:40	05:17	06:18	07:20	07:22	08:28	09:05
	16:44	17:53	18:53	20:58	21:57	22:26	21:56	20:47	19:24	17:07	16:06	15:55
26	08:41	07:33	06:19	05:59	04:58	04:41	05:19	06:20	07:22	07:24	08:30	09:06
	16:46	17:55	18:55	21:00	21:58	22:26	21:54	20:44	19:22	17:04	16:05	15:56
27	08:39	07:31	06:17	05:56	04:56	04:41	05:20	06:22	07:24	07:27	08:32	09:06
	16:49	17:58	18:57	21:02	22:00	22:25	21:53	20:42	19:19	17:02	16:04	15:57
28	08:37	07:28	06:14	05:54	04:55	04:42	05:22	06:24	07:26	07:29	08:34	09:06
	16:51	18:00	18:59	21:04	22:02	22:25	21:51	20:39	19:16	16:59	16:02	15:58
29	08:35		07:11	05:52	04:54	04:43	05:24	06:26	07:28	07:31	08:36	09:06
	16:53		20:01	21:06	22:03	22:25	21:49	20:37	19:14	16:57	16:01	15:59
30	08:33		07:09	05:49	04:52	04:43	05:26	06:28	07:30	07:33	08:38	09:06
	16:55		20:04	21:08	22:05	22:25	21:47	20:34	19:11	16:55	16:00	16:00
31	08:32		07:06		04:51		05:28	06:30		07:35		09:06
	16:57		20:06		22:06		21:45	20:31		16:53		16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Licensed user:
SIA Estonian, Latvian & Lithuanian environment
Vilandes 3-6
LV-1010 Riga
0037167242411
Anna / anna@environment.lv
Calculated:
02/05/2022 17:18/3.5.576

SHADOW - Calendar

Shadow receptor: Žagarini - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 90.0° (20)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.35	3.07	4.72	8.16	9.63	10.93	9.79	7.85	5.92	3.23	1.29	0.72

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
293	300	348	355	333	399	506	566	582	663	919	1,110	790	574	487	406	8,631

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	09:06 16:03	08:30 17:00	07:26 18:02	07:03 18:08	05:47 21:11	04:50 22:08	20:49 (2.1) 21:19 (2.1) 22:24	04:44 21:25 (2.1) 21:43	05:30 20:29 19:08	06:32 07:32 16:51	07:38 16:51 15:59	08:39 16:51 15:59
2	09:06 16:04	08:28 17:02	07:23 18:04	07:01 18:10	05:45 21:13	04:49 22:09	20:49 (2.1) 21:19 (2.1) 22:24	04:45 21:25 (2.1) 21:41	05:32 20:26 19:06	06:34 07:34 16:48	07:40 16:48 15:58	08:41 16:48 15:58
3	09:05 16:05	08:26 17:04	07:21 18:07	06:58 18:12	05:42 21:15	04:48 22:11	20:49 (2.1) 21:19 (2.1) 22:23	04:46 21:25 (2.1) 21:39	05:34 20:24 19:03	06:36 07:36 16:46	07:42 16:46 15:58	08:43 16:46 15:58
4	09:05 16:06	08:24 17:06	07:18 18:09	06:55 18:14	05:40 21:17	04:47 22:12	20:49 (2.1) 21:19 (2.1) 22:23	04:47 21:25 (2.1) 21:37	05:36 20:21 19:00	06:38 07:38 16:44	07:44 16:44 15:57	08:44 16:44 15:57
5	09:05 16:08	08:22 17:09	07:15 18:11	06:53 18:16	05:38 21:19	04:46 22:13	20:49 (2.1) 21:19 (2.1) 22:22	04:48 21:25 (2.1) 21:35	05:38 20:18 18:58	06:40 07:40 16:42	07:46 16:42 15:56	08:46 16:42 15:56
6	09:04 16:09	08:20 17:11	07:13 18:13	06:50 18:18	05:36 21:21	04:45 22:14	20:49 (2.1) 21:19 (2.1) 22:21	04:49 21:25 (2.1) 21:32	05:40 20:16 18:55	06:42 07:42 16:40	07:49 16:40 15:55	08:48 16:40 15:55
7	09:03 16:11	08:18 17:13	07:10 18:15	06:47 18:20	05:33 21:23	04:44 22:16	20:50 (2.1) 21:20 (2.1) 22:21	04:50 21:25 (2.1) 21:30	05:42 20:13 18:52	06:44 07:44 16:38	07:51 16:38 15:55	08:49 16:38 15:55
8	09:03 16:12	08:16 17:15	07:08 18:17	06:45 18:23	05:31 21:25	04:44 22:17	20:49 (2.1) 21:19 (2.1) 22:20	04:51 21:25 (2.1) 21:28	05:44 20:10 18:50	06:46 07:47 16:36	07:53 16:36 15:54	08:51 16:36 15:54
9	09:02 16:14	08:13 17:18	07:05 18:20	06:42 18:25	05:29 21:27	04:43 22:18	20:50 (2.1) 21:20 (2.1) 22:19	04:52 21:25 (2.1) 21:26	05:46 20:08 18:47	06:48 07:49 16:33	07:55 16:33 15:54	08:52 16:33 15:54
10	09:01 16:15	08:11 17:20	07:02 18:22	06:40 18:27	05:27 21:29	04:42 22:19	20:50 (2.1) 21:20 (2.1) 22:18	04:54 21:26 (2.1) 21:24	05:48 20:05 18:45	06:50 07:51 16:32	07:57 16:32 15:53	08:53 16:32 15:53
11	09:00 16:17	08:09 17:22	07:00 18:24	06:37 18:29	05:25 21:31	04:42 22:20	20:50 (2.1) 21:20 (2.1) 22:17	04:55 21:26 (2.1) 21:21	05:50 20:02 18:42	06:52 07:53 16:30	07:59 16:30 15:53	08:55 16:30 15:53
12	08:59 16:19	08:07 17:24	06:57 18:26	06:34 18:31	05:23 21:33	04:41 22:20	20:51 (2.1) 21:21 (2.1) 22:16	04:56 21:26 (2.1) 21:19	05:52 20:00 18:39	06:54 07:55 16:28	08:02 16:28 15:53	08:56 16:28 15:53
13	08:59 16:21	08:05 17:27	06:54 18:28	06:32 18:33	05:21 21:35	04:41 22:21	20:50 (2.1) 21:20 (2.1) 22:14	04:58 21:26 (2.1) 22:11	05:54 20:57 18:37	06:56 07:57 16:26	08:04 16:26 15:52	08:57 16:26 15:52
14	08:57 16:23	08:02 17:29	06:52 18:30	06:29 18:35	05:19 21:37	04:40 22:22	20:51 (2.1) 21:21 (2.1) 22:13	04:59 21:26 (2.1) 22:08	05:56 20:58 18:34	06:58 07:59 16:24	08:06 16:24 15:52	08:58 16:24 15:52
15	08:56 16:24	08:00 17:31	06:49 18:32	06:27 18:37	05:17 21:39	04:40 22:23	20:51 (2.1) 21:21 (2.1) 22:12	05:01 21:26 (2.1) 21:12	05:58 20:52 18:32	07:00 08:01 16:22	08:08 16:22 15:52	08:59 16:22 15:52
16	08:55 16:26	07:58 17:33	06:46 18:34	06:24 18:39	05:15 21:41	04:40 22:23	20:52 (2.1) 21:21 (2.1) 22:11	05:02 21:25 (2.1) 21:09	06:00 20:59 18:29	07:02 08:03 16:20	08:10 16:20 15:52	09:00 16:20 15:52
17	08:54 16:28	07:55 17:36	06:44 18:37	06:21 18:41	05:13 21:43	04:40 22:24	20:52 (2.1) 21:22 (2.1) 22:09	05:04 21:26 (2.1) 21:07	06:02 20:59 18:27	07:04 08:05 16:19	08:12 16:19 15:52	09:01 16:19 15:52
18	08:53 16:30	07:53 17:38	06:41 18:39	06:19 18:43	05:11 21:45	04:39 22:24	20:57 (2.1) 21:22 (2.1) 22:08	05:05 21:25 (2.1) 21:05	06:04 20:59 18:24	07:06 08:07 16:17	08:14 16:17 15:52	09:02 16:17 15:52
19	08:51 16:32	07:50 17:40	06:38 18:41	06:16 18:46	05:10 21:46	04:39 22:25	20:55 (2.1) 21:22 (2.1) 22:06	05:07 21:25 (2.1) 21:02	06:06 21:00 18:22	07:08 08:10 16:15	08:16 16:15 15:53	09:02 16:15 15:53
20	08:50 16:34	07:48 17:42	06:36 18:43	06:14 18:48	05:08 21:48	04:39 22:25	20:53 (2.1) 21:22 (2.1) 22:05	05:09 21:24 (2.1) 21:00	06:08 21:01 18:19	07:10 08:12 16:14	08:18 16:14 15:53	09:03 16:14 15:53
21	08:49 16:36	07:46 17:45	06:33 18:45	06:11 18:50	05:06 21:50	04:40 22:25	20:52 (2.1) 21:22 (2.1) 22:03	05:10 21:24 (2.1) 21:01	06:10 21:02 18:17	07:12 08:14 16:12	08:20 16:12 15:53	09:04 16:12 15:53
22	08:47 16:38	07:43 17:47	06:30 18:47	06:09 18:52	05:04 21:52	04:40 22:26	20:51 (2.1) 21:22 (2.1) 22:02	05:12 21:23 (2.1) 21:03	06:12 21:04 18:14	07:14 08:16 16:11	08:22 16:11 15:54	09:04 16:11 15:54
23	08:46 16:40	07:41 17:49	06:28 18:49	06:06 18:54	05:03 21:54	04:40 22:26	20:51 (2.1) 21:23 (2.1) 22:00	05:14 21:24 (2.1) 21:05	06:14 21:06 18:12	07:16 08:18 16:09	08:24 16:09 15:54	09:05 16:09 15:54
24	08:44 16:42	07:38 17:51	06:25 18:51	06:04 18:56	05:01 21:55	04:40 22:26	20:51 (2.1) 21:23 (2.1) 22:00	05:15 21:25 (2.1) 21:06	06:16 21:07 18:09	07:18 08:20 16:08	08:26 16:08 15:55	09:05 16:08 15:55
25	08:42 16:45	07:36 17:53	06:22 18:53	06:01 18:58	05:00 21:57	04:41 22:26	20:49 (2.1) 21:23 (2.1) 22:00	05:17 21:26 (2.1) 21:07	06:18 21:08 18:07	07:20 07:22 17:07	08:28 16:06 15:56	09:06 16:06 15:56
26	08:41 16:47	07:33 17:56	06:20 18:55	05:59 19:00	04:58 21:59	04:41 22:26	20:49 (2.1) 21:24 (2.1) 22:00	05:19 21:25 (2.1) 21:08	06:20 21:18 18:04	07:22 07:24 17:04	08:30 16:05 15:56	09:06 16:05 15:56
27	08:39 16:49	07:31 17:58	06:17 18:58	05:57 19:02	04:57 22:00	04:42 22:26	20:49 (2.1) 21:24 (2.1) 22:00	05:21 21:25 (2.1) 21:05	06:22 21:19 18:02	07:24 07:26 17:02	08:32 16:04 15:57	09:06 16:04 15:57
28	08:37 16:51	07:28 18:00	06:14 19:00	05:54 19:04	04:55 22:02	04:42 22:26	20:49 (2.1) 21:24 (2.1) 22:00	05:23 21:25 (2.1) 21:06	06:24 21:16 18:00	07:26 07:28 17:00	08:34 16:03 15:58	09:06 16:03 15:58
29	08:35 16:53	07:12 18:02	05:52 19:02	05:52 19:06	04:54 22:03	04:43 22:25	20:49 (2.1) 21:24 (2.1) 22:00	05:24 21:25 (2.1) 21:07	06:26 21:14 17:57	07:28 07:30 16:57	08:36 16:01 15:59	09:06 16:01 15:59
30	08:34 16:55	07:09 18:04	05:49 19:08	05:49 19:12	04:53 22:05	04:44 22:25	20:49 (2.1) 21:24 (2.1) 22:00	05:26 21:25 (2.1) 21:08	06:28 21:11 17:55	07:30 07:33 16:55	08:38 16:00 16:00	09:06 16:00 16:00
31	08:32 16:58	07:06 18:06	05:46 19:06	05:46 19:10	04:51 22:06	04:51 22:26	20:48 (2.1) 21:17 (2.1)	05:28 21:45	06:30 20:32	07:35 16:53	09:06 16:01	16:01
Potential sun hours	235	266	366	426	508	529	530	470	385	324	247	216
Total, worst case					337		894					
Sun reduction					0.59		0.62					
Oper. time red.					0.99		0.99					
Wind dir. red.					0.60		0.60					
Total reduction					0.35		0.37					
Total, real					118		330					

Table layout: For each day in each month the following 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)