

Project:

Yendon Wind Farm

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West Wind Energy Pty Ltd

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence 3 °

Day step for calculation 1 days

Time step for calculation 1 minutes

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

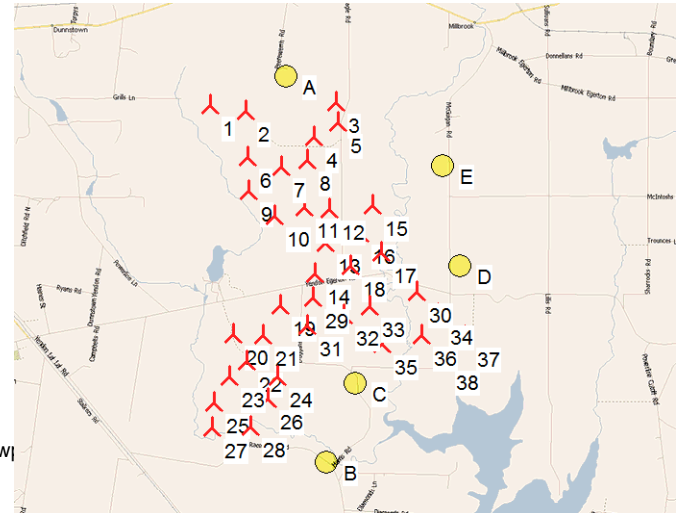
Height contours used: Height Contours: CONTOURLINE_ONLINEDATA_1.w

Obstacles used in calculation

Eye height: 1.5 m

Grid resolution: 10.0 m

Topographic shadow included in calculation



WTGs

UTM GDA94 Zone: 55				WTG type				Shadow data			
East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
1	235,749	5,834,082	529.3 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
2	236,335	5,834,001	536.1 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
3	237,834	5,834,197	545.5 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
4	237,479	5,833,611	530.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
5	237,872	5,833,859	530.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
6	236,389	5,833,239	530.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
7	236,950	5,833,099	536.1 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
8	237,383	5,833,222	540.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
9	236,427	5,832,689	509.1 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
10	236,867	5,832,295	510.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
11	237,362	5,832,449	513.3 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
12	237,778	5,832,435	520.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
13	237,722	5,831,876	520.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
14	237,577	5,831,353	510.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
15	238,492	5,832,517	520.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
16	238,291	5,832,052	520.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
17	238,663	5,831,739	510.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
18	238,151	5,831,503	515.2 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
19	237,011	5,830,822	495.4 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
20	236,257	5,830,315	481.7 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
21	236,743	5,830,314	483.2 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
22	236,485	5,829,872	489.3 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
23	236,209	5,829,620	482.5 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
24	237,009	5,829,643	480.1 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
25	235,970	5,829,179	470.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
26	236,860	5,829,275	480.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
27	235,956	5,828,763	470.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
28	236,585	5,828,803	470.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
29	237,553	5,830,953	500.8 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
30	239,265	5,831,110	510.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
31	237,473	5,830,494	499.2 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
32	238,063	5,830,698	506.4 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
33	238,489	5,830,840	507.9 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
34	239,624	5,830,764	504.7 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
35	238,726	5,830,234	490.0 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
36	239,378	5,830,392	492.8 REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6

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SHADOW - Main Result

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	UTM GDA94 Zone: 55			Row data/Description	WTG type			Shadow data				
	East	North	Z		Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Calculation distance	RPM
	[m]						[kW]	[m]	[m]	[m]	[m]	[RPM]
37	240,083	5,830,399	500.0	REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6
38	239,743	5,830,020	488.9	REpower 3.2M114 3200 114.0 !O...	No	REpower	3.2M114-3,200	3,200	114.0	103.0	1,717	12.6

Shadow receptor-Input

No.	UTM GDA94 Zone: 55			Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
	East	North	Z						
	[m]			[m]	[m]	[m]	[°]	[°]	
A	236,991	5,834,590	547.3	1.0	1.0	1.0	0.0	90.0	"Green house mode"
B	237,867	5,828,259	470.0	1.0	1.0	1.0	0.0	90.0	"Green house mode"
C	238,304	5,829,565	486.7	1.0	1.0	1.0	0.0	90.0	"Green house mode"
D	239,974	5,831,555	513.6	1.0	1.0	1.0	0.0	90.0	"Green house mode"
E	239,635	5,833,198	530.0	1.0	1.0	1.0	0.0	90.0	"Green house mode"

Calculation Results

Shadow receptor

Shadow, worst case

No.	Shadow hours per year	Shadow days per year	Max shadow hours per day
	[h/year]	[days/year]	[h/day]
A	23:26	84	0:27
B	6:49	34	0:19
C	24:25	113	0:19
D	11:29	67	0:18
E	1:51	25	0:06

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (573)	6:38	
2	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (574)	0:00	
3	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (575)	16:48	
4	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (576)	0:00	
5	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (577)	0:00	
6	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (578)	0:00	
7	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (579)	0:00	
8	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (580)	0:00	
9	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (581)	0:00	
10	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (582)	0:00	
11	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (583)	0:00	
12	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (584)	0:00	
13	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (585)	0:00	
14	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (586)	0:00	
15	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (587)	1:51	
16	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (588)	0:00	
17	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (589)	5:14	
18	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (590)	0:00	
19	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (591)	0:00	
20	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (592)	0:00	
21	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (593)	0:00	
22	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (594)	0:00	
23	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (595)	0:00	
24	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (596)	5:16	
25	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (597)	0:00	
26	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (598)	3:52	
27	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (599)	0:00	

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SHADOW - Main Result

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No.	Name	Worst case [h/year]	Expected [h/year]
28	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (600)	6:49	
29	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (601)	0:00	
30	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (602)	0:00	
31	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (603)	0:00	
32	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (604)	0:00	
33	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (605)	6:15	
34	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (606)	0:00	
35	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (607)	0:00	
36	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (608)	10:57	
37	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (609)	0:00	
38	REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (610)	4:20	

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SHADOW - Calendar

Shadow receptor: A - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (1)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December			
1	06:07	06:27 (3)	06:38	20:07 (1)	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57	06:18 (3)
2	24	06:51 (3)	06:38	8 20:15 (1)	20:06	19:20	17:39	17:15	17:16	17:37	18:02	18:28	19:58	20:29	14 06:32 (3)
3	06:07	06:28 (3)	06:40	20:08 (1)	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57	06:18 (3)
4	24	06:52 (3)	06:37	6 20:14 (1)	20:04	19:18	17:38	17:14	17:16	17:38	18:03	18:29	19:59	20:30	16 06:34 (3)
5	06:08	06:29 (3)	06:41	20:09 (1)	07:11	07:40	07:07	07:31	07:40	07:22	06:43	05:57	06:16	05:57	06:17 (3)
6	23	06:52 (3)	06:36	4 20:13 (1)	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31	17 06:34 (3)
7	06:09	06:30 (3)	06:42	20:11 (1)	07:12	07:41	07:08	07:32	07:40	07:21	06:42	06:56	06:15	05:56	06:17 (3)
8	22	06:52 (3)	06:35	1 20:12 (1)	20:01	19:15	17:36	17:14	17:17	17:39	18:05	19:30	20:01	20:32	19 06:36 (3)
9	06:10	06:30 (3)	06:43		07:13	06:42	07:08	07:33	07:40	07:20	06:40	06:54	06:14	05:56	06:17 (3)
10	22	06:52 (3)	06:34		20:00	18:14	17:35	17:13	17:18	17:40	18:06	19:31	20:02	20:33	20 06:37 (3)
11	06:11	06:31 (3)	06:44		07:14	06:43	07:09	07:33	07:39	07:19	06:39	06:53	06:13	05:56	06:17 (3)
12	21	06:52 (3)	06:33		19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34	21 06:38 (3)
13	06:12	06:32 (3)	06:45		07:15	06:43	07:10	07:34	07:39	07:18	06:37	06:51	06:12	19:41 (1)	05:56
14	20	06:52 (3)	06:32		19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	1 19:42 (1)	20:35
15	06:13	06:33 (3)	06:46		07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	19:39 (1)	05:56
16	19	06:52 (3)	06:31		19:56	18:09	17:31	17:13	17:20	17:42	18:08	19:34	20:05	4 19:43 (1)	20:36
17	06:14	06:34 (3)	06:48		07:17	06:45	07:12	07:35	07:39	07:16	06:34	06:48	06:10	19:39 (1)	05:56
18	17	06:51 (3)	06:30		19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	6 19:45 (1)	20:37
19	06:15	06:35 (3)	06:49		07:18	06:46	07:13	07:35	07:38	07:15	06:33	06:47	06:09	19:38 (1)	05:56
20	16	06:51 (3)	06:29		19:53	18:06	17:29	17:12	17:21	17:44	18:10	19:36	20:07	8 19:46 (1)	20:37
21	06:16	06:36 (3)	06:50		07:19	06:47	07:14	07:36	07:38	07:14	06:31	06:46	06:08	19:38 (1)	05:56
22	14	06:50 (3)	06:28		19:51	18:05	17:29	17:12	17:21	17:45	18:11	19:37	20:08	9 19:47 (1)	20:38
23	06:17	06:37 (3)	06:51		07:20	06:48	07:15	07:36	07:38	07:13	06:30	06:44	06:07	19:37 (1)	05:57
24	13	06:50 (3)	06:27		19:50	18:04	17:28	17:12	17:22	17:46	18:12	19:38	20:09	11 19:48 (1)	20:39
25	06:18	06:39 (3)	06:52		07:21	06:49	07:15	07:37	07:37	07:12	06:28	06:43	06:07	19:37 (1)	05:57
26	9	06:48 (3)	06:26		19:48	18:02	17:27	17:12	17:23	17:47	18:12	19:39	20:10	11 19:48 (1)	20:40
27	06:19		06:53		07:22	06:50	07:16	07:37	07:37	07:10	06:27	06:41	06:06	19:38 (1)	05:57
28	20		06:25		19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:39	20:11	12 19:50 (1)	20:41
29	06:20		06:54		07:23	06:51	07:17	07:37	07:36	07:09	06:25	06:40	06:05	19:38 (1)	05:57
30	20		06:24		19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:40	20:13	13 19:51 (1)	20:41
31	06:21		06:55		07:23	06:51	07:18	07:38	07:36	07:08	06:24	06:38	06:04	19:38 (1)	05:57
1	20		06:23		19:44	17:58	17:24	17:12	17:25	17:49	18:15	19:41	20:14	14 19:52 (1)	20:42
2	06:22	20:12 (1)	06:56		07:24	06:52	07:19	07:38	07:35	07:07	06:22	06:37	06:03	19:39 (1)	05:58
3	20	20:14 (1)	07:01		19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	14 19:53 (1)	20:43
4	06:23	20:09 (1)	06:57		07:25	06:53	07:20	07:38	07:35	07:05	06:21	06:36	06:03	19:39 (1)	05:58
5	20	20:17 (1)	07:01		19:41	17:55	17:23	17:12	17:26	17:51	18:17	19:43	20:16	15 19:54 (1)	20:43
6	06:24	20:08 (1)	06:58		07:26	06:54	07:20	07:39	07:34	07:04	06:19	06:34	06:02	19:39 (1)	05:59
7	20	20:19 (1)	07:01		19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	16 19:55 (1)	20:44
8	06:25	20:07 (1)	07:00		07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:02	19:41 (1)	05:59
9	20	20:20 (1)	07:01		19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	15 19:56 (1)	20:44
10	06:26	20:06 (1)	07:01		07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	19:41 (1)	05:59
11	20	20:22 (1)	07:01		19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	16 19:57 (1)	20:45
12	06:27	20:06 (1)	07:02		07:29	06:57	07:23	07:39	07:32	07:00	06:14	06:30	06:00	19:43 (1)	06:00
13	20	20:21 (1)	07:01		19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	13 19:56 (1)	20:46
14	06:28	20:05 (1)	07:03		07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	19:44 (1)	06:00
15	20	20:21 (1)	07:04		19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	11 19:55 (1)	20:46
16	06:29	20:05 (1)	07:04		07:31	06:59	07:24	07:40	07:31	06:58	06:11	06:28	05:59	19:46 (1)	06:01
17	20	20:20 (1)	07:05		19:32	17:47	17:18	17:14	17:30	17:56	18:22	19:49	20:22	8 19:54 (1)	20:46
18	06:30	20:05 (1)	07:06		07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	19:50 (1)	06:02
19	20	20:19 (1)	07:07		19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	2 19:52 (1)	20:47
20	06:31	20:05 (1)	07:07		07:33	07:00	07:26	07:40	07:29	06:55	06:08	06:25	05:59		06:02
21	20	20:19 (1)	07:08		19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24		20:47
22	06:32	20:05 (1)	07:07		07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58		06:03
23	20	20:18 (1)	07:08		19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:25		20:48
24	06:33	20:05 (1)	07:08		07:34	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58		06:03
25	20	20:17 (1)	07:09		19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26		20:48
26	06:34	20:06 (1)			07:35	07:03	07:28	07:40	07:27	06:51	06:04	06:22	05:57	06:19 (3)	06:04
27	20	20:17 (1)			19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:27	9 06:28 (3)	20:48
28	06:35	20:06 (1)			07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:18 (3)	06:05
29	20	20:17 (1)			19:23	17:40	17:15	17:16	17:35	18:01	18:27	19:55	20:28	12 06:30 (3)	20:49
30	06:36	20:07 (1)			07:37		07:29		07:25	06:48		06:19			06:06
31	20	20:16 (1)			19:21		17:15		17:36	18:02		19:56			20:49
Potential sun hours	447		378		383		334		288		305		332		355
Total, worst case	424		19											220	743

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

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

Yendon Wind Farm

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12/02/2015 10:01 AM / 5

Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street

AU-GISBORNE Victoria 3437

+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar

Shadow receptor: B - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (2)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December				
1	06:06	06:38	07:09	07:38	07:05	16:57 (28)	07:30	07:40	07:24	17:06 (28)	06:46	06:00	06:18	05:57		
	20:49	20:38	20:06	19:20	17:39	15	17:12 (28)	17:14	17:16	17:37	9	17:15 (28)	18:02	18:28	19:58	20:29
2	06:07	06:39	07:10	07:39	07:06	16:55 (28)	07:31	07:40	07:24	17:05 (28)	06:45	05:59	06:17	05:57		
	20:49	20:37	20:04	19:18	17:38	17	17:12 (28)	17:14	17:16	17:37	11	17:16 (28)	18:03	18:29	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	16:55 (28)	07:31	07:40	07:23	17:05 (28)	06:43	05:57	06:16	05:56		
	20:49	20:36	20:03	19:17	17:37	17	17:12 (28)	17:14	17:17	17:38	12	17:17 (28)	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	16:54 (28)	07:32	07:40	07:22	17:04 (28)	06:42	06:56	06:15	05:56		
	20:50	20:35	20:01	19:15	17:35	18	17:12 (28)	17:13	17:17	17:39	14	17:18 (28)	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:09	16:54 (28)	07:33	07:40	07:21	17:04 (28)	06:40	06:54	06:14	05:56		
	20:50	20:34	20:00	18:14	17:34	17	17:11 (28)	17:13	17:18	17:40	15	17:19 (28)	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	16:54 (28)	07:33	07:40	07:20	17:04 (28)	06:39	06:53	06:13	05:56		
	20:50	20:33	19:59	18:12	17:33	16	17:10 (28)	17:13	17:18	17:41	16	17:20 (28)	18:07	19:32	20:03	20:34
7	06:12	06:45	07:15	06:43	07:10	16:53 (28)	07:34	07:39	07:18	17:03 (28)	06:37	06:51	06:12	05:56		
	20:50	20:32	19:57	18:11	17:32	16	17:09 (28)	17:13	17:19	17:42	17	17:20 (28)	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	16:54 (28)	07:34	07:39	07:17	17:03 (28)	06:36	06:50	06:11	05:56		
	20:50	20:31	19:56	18:09	17:31	14	17:08 (28)	17:12	17:19	17:42	18	17:21 (28)	18:08	19:34	20:05	20:36
9	06:13	06:47	07:17	06:45	07:12	16:54 (28)	07:35	07:39	07:16	17:03 (28)	06:34	06:48	06:10	05:56		
	20:49	20:30	19:54	18:08	17:30	13	17:07 (28)	17:12	17:20	17:43	19	17:22 (28)	18:09	19:35	20:06	20:37
10	06:14	06:49	07:18	06:46	07:13	16:54 (28)	07:35	07:39	07:15	17:04 (28)	06:33	06:47	06:09	05:56		
	20:49	20:29	19:53	18:06	17:29	12	17:06 (28)	17:12	17:20	17:44	17	17:21 (28)	18:10	19:36	20:07	20:38
11	06:15	06:50	07:19	06:47	07:14	16:55 (28)	07:36	07:38	07:14	17:05 (28)	06:31	06:45	06:08	05:56		
	20:49	20:28	19:51	18:05	17:28	10	17:05 (28)	17:12	17:21	17:45	16	17:21 (28)	18:11	19:37	20:08	20:38
12	06:16	06:51	07:20	06:48	07:15	16:56 (28)	07:36	07:38	07:13	17:06 (28)	06:30	06:44	06:07	05:56		
	20:49	20:27	19:50	18:04	17:27	8	17:04 (28)	17:12	17:22	17:46	14	17:20 (28)	18:11	19:38	20:09	20:39
13	06:17	06:52	07:21	06:49	07:15	16:57 (28)	07:37	07:37	07:12	17:07 (28)	06:28	06:43	06:06	05:57		
	20:49	20:26	19:48	18:02	17:27	6	17:03 (28)	17:12	17:22	17:47	10	17:17 (28)	18:12	19:39	20:11	20:40
14	06:18	06:53	07:22	06:50	07:16	16:57 (28)	07:37	07:37	07:10	17:10 (28)	06:27	06:41	06:06	05:57		
	20:48	20:25	19:47	18:01	17:26	4	17:01 (28)	17:12	17:23	17:47	4	17:14 (28)	18:13	19:39	20:12	20:41
15	06:20	06:54	07:22	06:51	07:17	16:59 (28)	07:38	07:37	07:09	17:12 (28)	06:25	06:40	06:05	05:57		
	20:48	20:24	19:45	17:59	17:25	2	17:01 (28)	17:12	17:24	17:48	18:14	19:40	20:13	20:41		
16	06:21	06:55	07:23	06:52	07:18	16:56 (28)	07:38	07:36	07:08	17:12 (28)	06:24	06:38	06:04	05:57		
	20:48	20:23	19:44	17:58	17:24	17:24	17:12	17:24	17:49	17:51	18:15	19:41	20:14	20:42		
17	06:22	06:56	07:24	06:52	07:19	16:57 (28)	07:38	07:36	07:07	17:12 (28)	06:22	06:37	06:03	05:58		
	20:47	20:21	19:42	17:57	17:23	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43			
18	06:23	06:57	07:25	06:53	07:20	16:58 (28)	07:39	07:35	07:05	17:12 (28)	06:20	06:36	06:03	05:58		
	20:47	20:20	19:41	17:55	17:22	17:22	17:12	17:26	17:51	18:16	19:43	20:16	20:43			
19	06:24	06:58	07:26	06:54	07:21	16:59 (28)	07:40	07:34	07:04	17:13 (28)	06:19	06:34	06:02	05:58		
	20:47	20:19	19:39	17:54	17:22	17:22	17:12	17:26	17:52	18:17	19:44	20:17	20:44			
20	06:25	06:59	07:27	06:55	07:21	16:58 (28)	07:40	07:34	07:03	17:14 (28)	06:17	06:33	06:01	05:59		
	20:46	20:18	19:38	17:52	17:21	17:21	17:12	17:27	17:52	18:18	19:45	20:18	20:45			
21	06:26	07:01	07:28	06:56	07:22	16:57 (28)	07:40	07:33	07:02	17:15 (28)	06:16	06:32	06:01	05:59		
	20:46	20:16	19:36	17:51	17:20	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45			
22	06:27	07:02	07:29	06:57	07:23	16:56 (28)	07:40	07:33	07:00	17:16 (28)	06:14	06:30	06:00	06:00		
	20:45	20:15	19:35	17:50	17:20	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46			
23	06:28	07:03	07:30	06:58	07:24	16:55 (28)	07:40	07:32	06:59	17:17 (28)	06:13	06:29	06:00	06:00		
	20:45	20:14	19:33	17:49	17:19	17:19	17:13	17:29	17:55	18:21	19:48	20:21	20:46			
24	06:29	07:04	07:31	06:59	07:24	16:54 (28)	07:40	07:31	06:58	17:18 (28)	06:11	06:28	06:59	06:01		
	20:44	20:12	19:32	17:47	17:18	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47			
25	06:30	07:05	07:32	07:00	07:25	16:53 (28)	07:40	07:30	06:56	17:19 (28)	06:10	06:26	06:59	06:01		
	20:43	20:11	19:30	17:46	17:18	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47			
26	06:32	07:06	07:33	07:00	07:26	16:52 (28)	07:40	07:30	06:55	17:20 (28)	06:08	06:25	06:58	06:02		
	20:43	20:10	19:29	17:45	17:17	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47			
27	06:33	07:07	07:34	07:01	07:27	16:51 (28)	07:40	07:29	06:53	17:21 (28)	06:07	06:24	06:58	06:03		
	20:42	20:08	19:27	17:44	17:17	17:17	17:14	17:33	17:58	18:24	19:52	20:25	20:48			
28	06:34	07:08	07:34	07:02	07:27	16:50 (28)	07:40	07:28	06:52	17:22 (28)	06:05	06:23	06:58	06:03		
	20:41	20:07	19:26	17:42	17:16	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48			
29	06:35		07:35	07:03	07:28	17:01 (28)	07:40	07:27	06:51	17:08 (28)	06:03	06:21	06:57	06:04		
	20:40		19:24	17:41	17:16	17:08 (28)	17:15	17:34	2	17:12 (28)	18:00	18:26	19:54	20:27	20:48	
30	06:36		07:36	07:04	07:29	16:59 (28)	07:40	07:26	06:49	17:09 (28)	06:02	06:20	06:57	06:05		
	20:40		19:23	17:40	17:15	17:10 (28)	17:15	17:35	5	17:13 (28)	18:01	18:27	19:55	20:28	20:49	
31	06:37		07:37		07:30			07:25	7	17:07 (28)	06:48		06:19		06:05	
	20:39		19:21		17:15			17:36	7	17:14 (28)	18:02		19:57		20:49	
Potential sun hours	447	378	383	334	314	288	288	305	332	355	404	424	456			
Total, worst case				18		185		14		192						

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

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

Yendon Wind Farm

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12/02/2015 10:01 AM / 6

Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street

AU-GISBORNE Victoria 3437

+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar

Shadow receptor: C - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (3)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	
1	06:06 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	08:08 (36) 5 08:13 (36)
2	06:07 20:49	06:39 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	08:07 (36) 8 08:15 (36)
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	08:05 (36) 10 08:15 (36)
4	06:09 20:50	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:35	07:32 17:13	08:05 (36) 12 08:17 (36)
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:08 17:34	07:33 17:13	08:05 (36) 13 08:18 (36)
6	06:11 20:50	06:44 20:33	07:14 19:59	06:43 18:12	07:09 17:33	07:33 17:13	08:04 (36) 14 08:18 (36)
7	06:12 20:50	06:45 20:32	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	08:04 (36) 15 08:19 (36)
8	06:13 20:50	06:46 20:31	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:12	08:03 (36) 16 08:19 (36)
9	06:13 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	08:03 (36) 17 08:20 (36)
10	06:14 20:49	06:49 20:29	07:18 19:53	06:46 18:06	07:13 (38) 7 07:20 (38)	07:35 17:29	08:03 (36) 17 08:20 (36)
11	06:15 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:10 (38) 12 07:22 (38)	07:14 17:28	08:03 (36) 18 08:21 (36)
12	06:16 20:49	06:51 20:27	07:20 19:50	06:48 18:03	07:09 (38) 14 07:23 (38)	07:15 17:27	08:03 (36) 18 08:21 (36)
13	06:17 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:08 (38) 16 07:24 (38)	07:15 17:27	08:03 (36) 19 08:22 (36)
14	06:18 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:09 (38) 15 07:24 (38)	07:16 17:26	08:03 (36) 19 08:22 (36)
15	06:20 20:48	06:54 20:24	07:22 19:45	06:51 17:59	07:10 (38) 14 07:24 (38)	07:17 17:25	08:04 (36) 19 08:23 (36)
16	06:21 20:48	06:55 20:23	07:23 19:44	06:51 17:58	07:11 (38) 13 07:24 (38)	07:18 17:24	08:03 (36) 19 08:22 (36)
17	06:22 20:47	06:56 20:21	19:47 (26) 19:51 (26)	07:24 19:42	07:12 (38) 12 07:24 (38)	07:19 17:23	08:03 (36) 19 08:22 (36)
18	06:23 20:47	06:57 20:20	19:45 (26) 19:55 (26)	07:25 19:41	07:12 (38) 10 07:22 (38)	07:20 17:22	08:04 (36) 19 08:23 (36)
19	06:24 20:47	06:58 20:19	19:43 (26) 19:56 (26)	07:26 19:39	07:13 (38) 8 07:21 (38)	07:20 17:22	08:04 (36) 19 08:23 (36)
20	06:25 20:46	06:59 20:18	19:42 (26) 19:56 (26)	07:27 19:38	07:14 (38) 6 07:20 (38)	07:21 17:21	08:04 (36) 19 08:23 (36)
21	06:26 20:46	07:00 20:16	19:41 (26) 19:55 (26)	07:28 19:36	07:15 (38) 3 07:18 (38)	07:22 17:20	08:05 (36) 19 08:24 (36)
22	06:27 20:45	07:02 20:15	19:40 (26) 19:53 (26)	07:29 19:35	07:18 (38) 17 19:13 (24)	07:23 17:20	08:05 (36) 19 08:24 (36)
23	06:28 20:44	07:03 20:14	19:40 (26) 19:52 (26)	07:30 19:33	07:19 (38) 17 19:12 (24)	07:24 17:19	08:05 (36) 19 08:24 (36)
24	06:29 20:44	07:04 20:12	19:40 (26) 19:51 (26)	07:31 19:32	07:20 (38) 16 19:10 (24)	07:24 17:18	08:05 (36) 19 08:24 (36)
25	06:30 20:43	07:05 20:11	19:40 (26) 19:49 (26)	07:32 19:30	07:00 15 19:09 (24)	07:25 17:18	08:05 (36) 19 08:24 (36)
26	06:32 20:43	07:06 20:10	19:41 (26) 19:48 (26)	07:33 19:29	07:00 14 19:08 (24)	07:26 17:17	08:05 (36) 19 08:24 (36)
27	06:33 20:42	07:07 20:08	19:41 (26) 19:47 (26)	07:34 19:27	07:01 12 19:06 (24)	07:27 17:17	08:06 (36) 18 08:24 (36)
28	06:34 20:41	07:08 20:07	19:43 (26) 19:45 (26)	07:34 19:26	07:02 10 19:04 (24)	07:27 17:16	08:06 (36) 19 08:25 (36)
29	06:35 20:40		07:35 19:24	07:03 7 19:02 (24)	07:03 17:16	07:28 17:15	08:06 (36) 19 08:25 (36)
30	06:36 20:40		07:36 19:23	07:04 4 19:01 (24)	07:04 17:15	07:29 17:15	08:07 (36) 18 08:25 (36)
31	06:37 20:39		07:37 19:21		07:29 17:15		
Potential sun hours	447	378	383	334	314	288	503
Total, worst case			115	155	130		

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

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

Yendon Wind Farm

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar

Shadow receptor: C - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (3)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

July	August	September	October	November	December	
1 07:40 17:16	18 08:07 (36) 07:24 17:37	06:46 18:02	12 07:09 (38) 06:00 18:28	06:18 19:58	05:57 20:29	
2 07:40 17:16	18 08:07 (36) 07:23 17:37	06:45 18:03	7 07:12 (38) 05:59 18:28	06:17 19:59	05:57 20:30	
3 07:40 17:17	17 08:08 (36) 07:22 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31	
4 07:40 17:17	16 08:09 (36) 07:22 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 20:32	
5 07:40 17:18	16 08:09 (36) 07:20 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33	
6 07:40 17:18	15 08:10 (36) 07:19 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34	
7 07:39 17:19	14 08:25 (36) 07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35	
8 07:39 17:19	13 08:11 (36) 07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36	
9 07:39 17:20	12 08:24 (36) 07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37	
10 07:38 17:21	9 08:13 (36) 07:15 17:44	06:33 18:10	06:47 19:36	06:09 20:07	05:56 20:38	
11 07:38 17:21	6 08:22 (36) 07:14 17:45	06:31 18:11	06:45 19:37	06:08 20:08	05:56 20:38	
12 07:38 17:22	07:13 17:46	06:30 18:11	06:44 19:38	06:07 20:09	05:56 20:39	
13 07:37 17:22	07:12 17:47	06:28 18:12	3 17:49 (24) 06:43 19:39	06:06 20:10	05:57 20:40	
14 07:37 17:23	07:10 17:47	06:27 18:13	7 17:46 (24) 06:41 19:39	3 19:15 (26) 06:06 20:12	05:57 20:41	
15 07:36 17:24	07:09 17:48	06:25 18:14	9 17:53 (24) 06:40 19:40	7 19:13 (26) 06:05 20:13	05:57 20:41	
16 07:36 17:24	07:08 17:49	06:24 18:15	12 17:43 (24) 06:38 19:41	8 19:20 (26) 06:04 20:14	05:57 20:42	
17 07:35 17:25	07:07 17:50	06:22 18:16	13 17:55 (24) 06:37 19:42	10 19:21 (26) 06:03 20:15	05:58 20:43	
18 07:35 17:26	07:05 17:51	06:20 18:16	14 17:42 (24) 06:36 19:43	12 19:11 (26) 06:03 20:16	05:58 20:43	
19 07:34 17:26	07:04 17:52	06:19 18:17	16 17:56 (24) 06:34 19:44	13 19:23 (26) 06:02 20:17	05:58 20:44	
20 07:34 17:27	07:03 17:52	06:17 18:18	17 17:41 (24) 06:33 19:45	13 19:24 (26) 06:01 20:18	05:59 20:45	
21 07:33 17:28	07:02 17:53	06:16 18:19	18 17:57 (24) 06:32 19:46	14 19:11 (26) 06:01 20:19	05:59 20:45	
22 07:32 17:29	07:00 17:54	3 07:20 (38) 06:14 18:20	18 17:41 (24) 06:30 19:47	15 19:12 (26) 06:00 20:20	06:00 20:46	
23 07:32 17:29	06:59 17:55	6 07:23 (38) 06:13 18:21	16 17:59 (24) 06:29 19:48	12 19:27 (26) 06:00 20:21	06:00 20:46	
24 07:31 17:30	06:58 17:56	8 07:24 (38) 06:11 18:22	12 17:42 (24) 06:28 19:49	10 19:25 (26) 05:59 20:22	06:01 20:47	
25 07:30 17:31	06:56 17:57	10 07:17 (38) 06:10 18:22	6 17:55 (24) 06:26 19:50	05:59 20:23	06:01 20:47	
26 07:30 17:32	06:55 17:57	12 07:25 (38) 06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47	
27 07:29 17:33	06:53 17:58	13 07:26 (38) 06:07 18:24	06:24 19:52	05:58 20:25	06:03 20:48	
28 07:28 17:33	06:52 17:59	14 07:11 (38) 06:05 18:25	06:23 19:53	05:58 20:26	06:03 20:48	
29 07:27 17:34	06:51 18:00	15 07:25 (38) 06:03 18:26	06:21 19:54	05:57 20:27	06:04 20:48	
30 07:26 17:35	06:49 18:01	16 07:08 (38) 06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49	
31 07:25 17:36	06:48 18:02	14 07:24 (38) 06:01 18:28	06:19 19:56	06:05 20:28	06:05 20:49	
Potential sun hours	305	332	355	404	424	456
Total, worst case	154	111	180	117		

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

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

Yendon Wind Farm

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar

Shadow receptor: D - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (4)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	06:06 20:49	06:38 20:38	07:09 20:06	07:38 19:20	18:41 (17) 07:05	07:30 17:14
2	06:07 20:49	06:39 20:37	07:10 20:04	07:39 19:18	18:40 (17) 17:38	07:31 17:14
3	06:08 20:49	20:16 (33) 20:19 (33)	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37
4	06:09 20:49	20:14 (33) 20:20 (33)	06:42 20:35	07:12 20:01	18:40 (17) 19:15	07:07 17:35
5	06:10 20:49	20:13 (33) 20:22 (33)	06:43 20:34	07:13 20:00	17:40 (17) 18:14	07:08 17:34
6	06:11 20:49	20:13 (33) 20:23 (33)	06:44 20:33	07:14 19:58	17:40 (17) 18:12	07:09 17:33
7	06:12 20:49	20:13 (33) 20:24 (33)	06:45 20:32	07:15 19:57	17:41 (17) 18:11	07:10 17:32
8	06:13 20:49	20:13 (33) 20:25 (33)	06:46 20:31	07:16 19:56	17:42 (17) 18:09	07:11 17:31
9	06:13 20:49	20:13 (33) 20:25 (33)	06:47 20:30	07:17 19:54	17:47 (17) 18:08	07:12 17:30
10	06:14 20:49	20:13 (33) 20:25 (33)	06:48 20:29	07:18 19:53	17:30 18:06	07:35 17:12
11	06:15 20:49	20:13 (33) 20:25 (33)	06:50 20:28	07:19 19:51	17:29 18:05	07:36 17:12
12	06:16 20:49	20:12 (33) 20:24 (33)	06:51 20:27	07:20 19:50	17:28 18:03	07:36 17:12
13	06:17 20:49	20:12 (33) 20:24 (33)	06:52 20:26	07:21 19:48	17:27 18:02	07:37 17:12
14	06:18 20:48	20:13 (33) 20:24 (33)	06:53 20:25	07:21 19:47	17:26 18:01	07:37 17:12
15	06:19 20:48	20:13 (33) 20:23 (33)	06:54 20:24	07:22 19:45	17:26 17:59	07:37 17:12
16	06:21 20:48	20:13 (33) 20:23 (33)	06:55 20:22	07:23 19:44	17:25 17:58	07:38 17:12
17	06:22 20:47	20:13 (33) 20:23 (33)	06:56 20:21	07:24 19:42	17:24 17:56	07:38 17:12
18	06:23 20:47	20:14 (33) 20:22 (33)	06:57 20:20	07:25 19:41	17:23 17:55	07:38 17:12
19	06:24 20:46	20:15 (33) 20:23 (33)	06:58 20:19	07:26 19:39	17:22 17:54	07:39 17:12
20	06:25 20:46	20:16 (33) 20:22 (33)	06:59 20:17	07:27 19:38	17:22 17:52	07:39 17:12
21	06:26 20:45	20:16 (33) 20:22 (33)	07:00 20:16	07:28 19:36	17:21 17:51	07:39 17:13
22	06:27 20:45	20:17 (33) 20:21 (33)	07:01 20:15	07:29 19:35	17:20 17:50	07:39 17:13
23	06:28 20:44	20:18 (33) 20:21 (33)	07:03 20:14	07:30 19:33	17:19 17:49	07:40 17:13
24	06:29 20:44	07:04 20:12	07:31 19:32	06:59 17:47	17:19 17:18	07:40 17:13
25	06:30 20:43	07:05 20:11	07:32 19:30	06:59 17:46	17:17 17:18	07:40 17:14
26	06:31 20:42	07:06 20:10	07:33 19:29	07:00 17:45	17:17 17:17	07:40 17:14
27	06:33 20:42	07:07 20:08	07:33 19:27	07:01 17:43	17:17 17:17	07:40 17:14
28	06:34 20:41	07:08 20:07	07:34 19:26	18:46 (17) 18:56 (17)	07:02 17:42	07:40 17:15
29	06:35 20:40	07:09 19:24	07:35 18:58 (17)	18:44 (17) 17:41	07:03 17:41	07:40 17:15
30	06:36 20:40	07:10 19:23	07:36 18:59 (17)	18:43 (17) 17:40	07:04 17:40	07:40 17:15
31	06:37 20:39	07:11 19:21	07:37 18:59 (17)	18:41 (17) 17:39	07:05 17:39	07:40 17:15
Potential sun hours	447	378	383	334	314	288
Total, worst case	187		58	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)
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Project:

Yendon Wind Farm

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar

Shadow receptor: D - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (4)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December	
1	07:40	07:24	06:46	06:00	06:18	05:57	19:55 (33)
	17:16	17:37	18:02	18:28	19:57	20:29	20:07 (33)
2	07:40	07:23	06:45	05:59	06:17	05:57	19:55 (33)
	17:16	17:37	18:03	18:28	19:58	20:30	20:07 (33)
3	07:40	07:22	06:43	05:57	06:16	05:56	19:56 (33)
	17:17	17:38	18:04	18:29	20:00	20:31	20:08 (33)
4	07:40	07:21	06:42	17:39 (17)	06:56	06:15	19:57 (33)
	17:17	17:39	18:05	17:44 (17)	19:30	20:01	20:32
5	07:40	07:20	06:40	17:38 (17)	06:54	06:14	19:58 (33)
	17:18	17:40	18:06	17:45 (17)	19:31	20:02	20:33
6	07:39	07:19	06:39	17:36 (17)	06:53	06:13	19:59 (33)
	17:18	17:41	18:06	17:46 (17)	19:32	20:03	20:09 (33)
7	07:39	07:18	06:37	17:35 (17)	06:51	06:12	20:00 (33)
	17:19	17:41	18:07	17:47 (17)	19:33	20:04	20:09 (33)
8	07:39	07:17	06:36	17:34 (17)	06:50	06:11	20:02 (33)
	17:19	17:42	18:08	17:48 (17)	19:34	20:05	20:08 (33)
9	07:39	07:16	06:34	17:34 (17)	06:48	06:10	20:04 (33)
	17:20	17:43	18:09	17:49 (17)	19:35	20:06	20:37
10	07:38	07:15	06:33	17:33 (17)	06:47	06:09	20:07 (33)
	17:20	17:44	18:10	17:49 (17)	19:36	20:07	20:37
11	07:38	07:14	06:31	17:33 (17)	06:45	06:08	20:00 (33)
	17:21	17:45	18:11	17:51 (17)	19:37	20:08	20:38
12	07:38	07:13	06:30	17:33 (17)	06:44	06:07	20:02 (33)
	17:22	17:46	18:11	17:51 (17)	19:37	20:09	20:39
13	07:37	07:12	06:28	17:33 (17)	06:43	06:06	20:04 (33)
	17:22	17:46	18:12	17:50 (17)	19:38	20:10	20:40
14	07:37	07:10	06:27	17:35 (17)	06:41	06:06	20:04 (33)
	17:23	17:47	18:13	17:49 (17)	19:39	20:11	20:41
15	07:36	07:09	06:25	17:36 (17)	06:40	06:05	20:05 (33)
	17:24	17:48	18:14	17:46 (17)	19:40	20:13	20:41
16	07:36	07:08	06:23	17:40 (17)	06:38	06:04	20:05 (33)
	17:24	17:49	18:15	17:43 (17)	19:41	20:14	20:42
17	07:35	07:07	06:22	17:37 (17)	06:37	06:03	20:05 (33)
	17:25	17:50	18:16	17:49 (17)	19:42	20:15	20:43
18	07:35	07:05	06:20	17:36 (17)	06:36	06:03	20:05 (33)
	17:26	17:51	18:16	17:49 (17)	19:43	20:16	20:43
19	07:34	07:04	06:19	17:35 (17)	06:34	06:02	19:52 (33)
	17:26	17:51	18:17	17:49 (17)	19:44	20:17	20:44
20	07:34	07:03	06:17	17:34 (17)	06:33	06:01	19:52 (33)
	17:27	17:52	18:18	17:49 (17)	19:45	20:18	20:44
21	07:33	07:01	06:16	17:33 (17)	06:31	06:01	19:51 (33)
	17:28	17:53	18:19	17:49 (17)	19:46	20:19	20:45
22	07:32	07:00	06:14	17:32 (17)	06:30	06:00	19:52 (33)
	17:29	17:54	18:20	17:49 (17)	19:47	20:20	20:45
23	07:32	06:59	06:13	17:31 (17)	06:29	06:00	19:51 (33)
	17:29	17:55	18:21	17:49 (17)	19:48	20:21	20:46
24	07:31	06:57	06:11	17:30 (17)	06:28	05:59	19:52 (33)
	17:30	17:56	18:21	17:49 (17)	19:49	20:22	20:46
25	07:30	06:56	06:10	17:29 (17)	06:26	05:59	19:51 (33)
	17:31	17:56	18:22	17:49 (17)	19:50	20:23	20:47
26	07:29	06:55	06:08	17:28 (17)	06:25	05:58	19:52 (33)
	17:32	17:57	18:23	17:49 (17)	19:51	20:24	20:47
27	07:29	06:53	06:06	17:27 (17)	06:24	05:58	19:53 (33)
	17:33	17:58	18:24	17:49 (17)	19:52	20:25	20:48
28	07:28	06:52	06:05	17:26 (17)	06:23	05:58	19:52 (33)
	17:33	17:59	18:25	17:49 (17)	19:53	20:26	20:48
29	07:27	06:50	06:03	17:25 (17)	06:21	05:57	19:53 (33)
	17:34	18:00	18:26	17:49 (17)	19:54	20:27	20:48
30	07:26	06:49	06:02	17:24 (17)	06:20	05:57	19:54 (33)
	17:35	18:01	18:27	17:49 (17)	19:55	20:28	20:49
31	07:25	06:48	06:01	17:23 (17)	06:19	05:56	19:55 (33)
	17:36	18:01	18:28	17:49 (17)	19:56	20:29	20:49
Potential sun hours	305	332	355	404	424	456	456
Total, worst case			159		101		87

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

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

Yendon Wind Farm

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar

Shadow receptor: E - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (5)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:06 20:49	20:22 (15) 06:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:57	05:57 20:29
2	06:07 20:49	20:24 (15) 06:39	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	05:59 18:28	06:17 19:58	05:57 20:30
3	06:08 20:49	20:25 (15) 06:41	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:49	20:26 (15) 06:42	07:12 20:03	07:41 19:17	07:07 17:37	07:32 17:14	07:40 17:17	07:21 17:39	06:42 18:05	06:42 19:30	06:15 20:01	05:56 20:32
5	06:10 20:49	06:43 20:34	07:13 20:00	06:42 18:14	07:08 17:34	07:32 17:13	07:40 17:18	07:20 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:49	06:44 20:33	07:14 19:58	06:42 18:12	07:09 17:33	07:33 17:13	07:39 17:18	07:19 17:41	06:39 18:06	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:49	06:45 20:32	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:41	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:49	06:46 20:31	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:12	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
10	06:14 20:49	06:49 20:29	07:18 19:53	06:46 18:06	07:13 17:29	07:35 17:12	07:38 17:21	07:15 17:44	06:33 18:10	06:47 19:36	06:09 20:07	05:56 20:37
11	06:15 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	06:45 19:37	06:08 20:08	05:56 20:38
12	06:16 20:49	06:51 20:27	07:20 19:50	06:48 18:03	07:14 17:27	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:11	06:44 19:37	06:07 20:09	05:56 20:39
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14	06:18 20:48	06:53 20:25	07:21 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:39	06:06 20:11	05:57 20:40
15	06:20 20:48	06:54 20:24	07:22 19:45	06:50 17:59	07:17 17:25	07:37 17:12	07:36 17:24	07:09 17:48	06:25 18:14	06:40 19:40	06:05 20:12	05:57 20:41
16	06:21 20:48	06:55 20:22	07:23 19:44	06:51 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:23 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:56	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
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19	06:24 20:46	06:58 20:19	07:26 19:39	06:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:58 20:44
20	06:25 20:46	06:59 20:17	07:27 19:38	06:55 17:52	07:21 17:21	07:39 17:12	07:34 17:27	07:03 17:52	06:17 18:18	06:33 19:45	06:01 20:18	05:59 20:44
21	06:26 20:45	07:00 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:01 17:53	06:16 18:19	06:31 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:39 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:45
23	06:28 20:44	07:03 20:14	07:30 19:33	06:58 17:49	07:23 17:19	07:40 17:13	07:32 17:29	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:57 17:56	06:11 18:21	06:28 19:49	05:59 20:22	06:01 20:46
25	06:30 20:43	07:05 20:11	07:32 19:30	06:59 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	05:59 20:23	06:01 20:47
26	06:32 20:42	07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:29 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:33 19:27	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:06 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	06:23 20:26	06:03 20:48
29	06:35 20:40		07:35 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:50 18:00	06:03 18:26	06:21 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 19:23	07:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:48
31	06:37 20:39		07:37 19:21	07:05 17:40	07:29 17:15	07:40 17:15	07:25 17:36	06:48 18:01		06:19 19:56		06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Total, worst case	5											106

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:

Yendon Wind Farm

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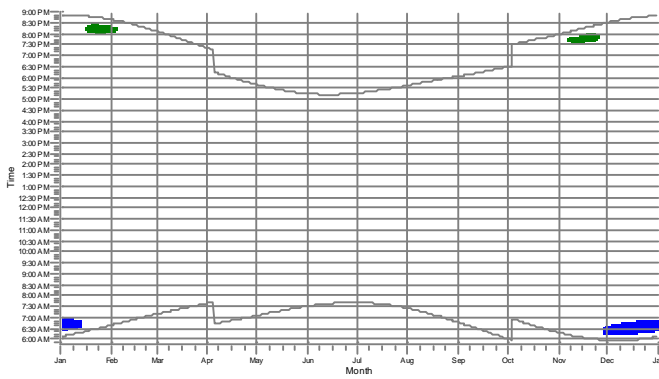
Adam Gray / gray@w-wind.com.au

Calculated:

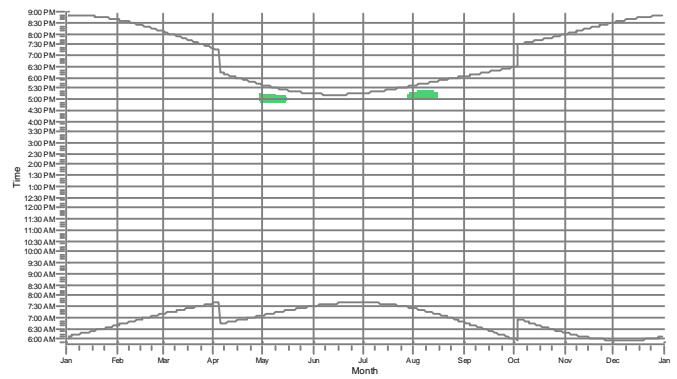
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar, graphical

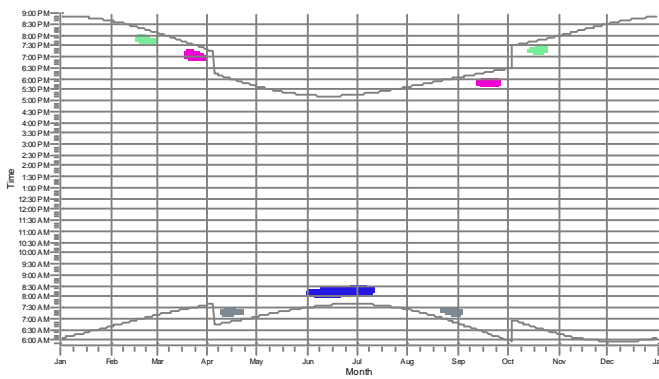
A: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (1)



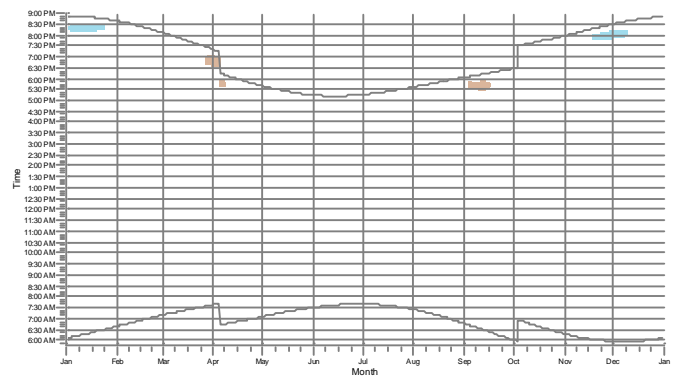
B: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (2)



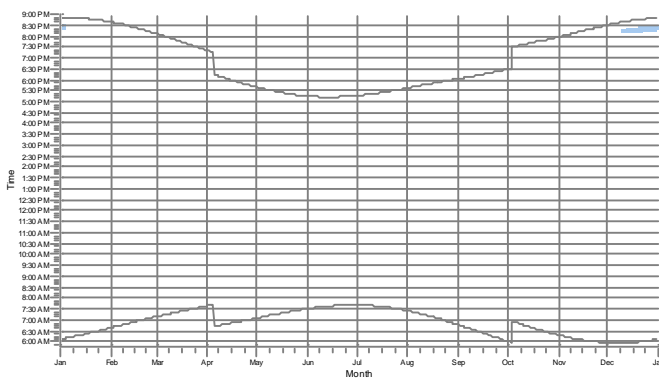
C: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (3)



D: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (4)



E: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (5)



WTGs

1: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (573)

3: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (575)

15: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (587)

17: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (589)

24: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (596)

26: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (598)

28: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (600)

33: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (605)

36: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (608)

38: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (610)

Project:

Yendon Wind Farm

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 1 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (573)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:39 20:07-20:15/8 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:15	07:40 17:16	07:24 17:37	06:46 18:03	06:01 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:40 20:08-20:14/6 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:38	06:45 18:03	05:59 18:29	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:09-20:13/4 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:23 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:57 20:31
4	06:09 20:50	06:42 20:11-20:12/1 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:14	07:40 17:17	07:22 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:08 17:35	07:33 17:13	07:40 17:18	07:21 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:33	07:14 19:59	06:43 18:12	07:09 17:34	07:33 17:13	07:40 17:18	07:19 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:50	06:45 20:32	07:15 19:57	06:44 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	19:41-19:42/1 20:35
8	06:13 20:50	06:46 20:31	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:13	07:39 17:20	07:17 17:43	06:36 18:08	06:50 19:34	06:11 20:05	19:39-19:43/4 20:36
9	06:14 20:49	06:48 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:13	07:39 17:20	07:16 17:43	06:34 18:09	06:49 19:35	06:10 20:06	19:39-19:45/6 20:37
10	06:15 20:49	06:49 20:29	07:18 19:53	06:46 18:06	07:13 17:29	07:35 17:12	07:38 17:21	07:15 17:44	06:33 18:10	06:47 19:36	06:09 20:07	19:38-19:46/8 20:38
11	06:16 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:14 17:29	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	06:46 19:37	06:08 20:08	19:38-19:47/9 20:38
12	06:17 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:28	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	19:37-19:48/11 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:15 17:27	07:37 17:12	07:37 17:23	07:12 17:47	06:28 18:12	06:43 19:39	06:07 20:10	19:37-19:48/11 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:48	06:27 18:13	06:41 19:40	06:06 20:12	19:38-19:50/12 20:41
15	06:20 20:48	06:54 20:24	07:23 19:45	06:51 17:59	07:17 17:25	07:38 17:12	07:36 17:24	07:09 17:48	06:25 18:14	06:40 19:40	06:05 20:13	19:38-19:51/13 20:41
16	06:21 20:48	06:55 20:23	07:24 19:44	06:52 17:58	07:18 17:24	07:38 17:12	07:36 17:25	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	19:38-19:52/14 20:42
17	06:22 20:47	20:12-20:14/2 06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:04 20:15	19:39-19:53/14 20:43
18	06:23 20:47	20:09-20:17/8 06:57 20:20	07:25 19:41	06:53 17:55	07:20 17:23	07:39 17:12	07:35 17:26	07:05 17:51	06:21 18:17	06:36 19:43	06:03 20:16	19:39-19:54/15 20:43
19	06:24 20:47	20:08-20:19/11 06:59 20:19	07:26 19:39	06:54 17:54	07:20 17:22	07:39 17:13	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	19:39-19:55/16 20:44
20	06:25 20:46	20:07-20:20/13 07:00 20:18	07:27 19:38	06:55 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:53	06:17 18:18	06:33 19:45	06:02 20:18	19:41-19:56/15 20:45
21	06:26 20:46	20:06-20:22/16 07:01 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	19:41-19:57/16 20:45
22	06:27 20:45	20:06-20:21/15 07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:40 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	19:43-19:56/13 20:46
23	06:28 20:44	20:05-20:21/16 07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	19:44-19:55/11 20:46
24	06:29 20:44	20:05-20:20/15 07:04 20:12	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:14	07:31 17:30	06:58 17:56	06:11 18:22	06:28 19:49	05:59 20:22	19:46-19:54/8 20:47
25	06:31 20:43	20:05-20:19/14 07:05 20:11	07:32 19:30	07:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:27 19:50	05:59 20:23	19:50-19:52/2 20:47
26	06:32 20:43	20:05-20:19/14 07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:30 17:32	06:55 17:58	06:08 18:23	06:25 19:51	05:59 20:24	20:47
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30	06:36 20:40	20:06-20:17/11 07:10 20:06	07:37 19:23	07:04 17:40	07:29 17:15	07:40 17:16	07:26 17:35	06:49 18:01	06:06 18:27	06:20 19:55	05:57 20:28	20:49
31	06:37 20:39	20:07-20:16/9 07:11 20:05	07:38 19:21	07:05 17:39	07:30 17:15	07:40 17:16	07:25 17:36	06:48 18:02	06:08 19:57	06:19 20:00	05:57 20:29	20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	180	19	0	0	0	0	0	0	0	0	199	0

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

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

Project:
Yendon Wind Farm

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+61 3 5421 9999

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Calculated:
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 2 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (574)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:39 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:15	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:38	06:45 18:03	05:59 18:29	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:57 20:31
4	06:09 20:49	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:14	07:40 17:17	07:22 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:08 17:35	07:33 17:13	07:40 17:18	07:20 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
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12	06:17 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:28	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	05:57 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:15 17:27	07:37 17:12	07:37 17:23	07:12 17:47	06:28 18:12	06:43 19:39	06:07 20:10	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:39	06:06 20:12	05:57 20:41
15	06:20 20:48	06:54 20:24	07:23 19:45	06:51 17:59	07:17 17:25	07:38 17:12	07:36 17:24	07:09 17:48	06:25 18:14	06:40 19:40	06:05 20:13	05:57 20:41
16	06:21 20:48	06:55 20:23	07:24 19:44	06:52 17:58	07:18 17:24	07:38 17:12	07:36 17:25	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	06:53 17:55	07:20 17:23	07:39 17:12	07:35 17:26	07:05 17:51	06:21 18:17	06:36 19:43	06:03 20:16	05:58 20:43
19	06:24 20:47	06:59 20:19	07:26 19:39	06:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:59 20:44
20	06:25 20:46	07:00 20:18	07:27 19:38	06:55 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:53	06:17 18:18	06:33 19:45	06:02 20:18	05:59 20:44
21	06:26 20:46	07:01 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:40 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:44	07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:14	07:31 17:30	06:58 17:56	06:11 18:22	06:28 19:49	05:59 20:22	06:01 20:47
25	06:31 20:43	07:05 20:11	07:32 19:30	07:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:27 19:50	05:59 20:23	06:02 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:30 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:59 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:35 19:26	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:34	06:52 17:59	06:05 18:25	06:23 19:53	05:58 20:26	06:03 20:48
29	06:35 20:40		07:35 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:51 18:00	06:04 18:26	06:22 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 19:23	07:04 17:40	07:29 17:15	07:40 17:16	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:02		06:19 19:56		06:06 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:
Yendon Wind Farm

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12/02/2015 10:01 AM / 14

Licensed user:
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Adam Gray / gray@w-wind.com.au
Calculated:
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 3 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (575)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 06:27-06:51/24 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:57	05:57 06:18-06:32/14 20:29
2	06:07 06:28-06:52/24 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	06:59 18:28	06:17 19:59	05:57 06:18-06:34/16 20:30
3	06:08 06:29-06:52/23 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04	06:57 18:29	06:16 20:00	05:56 06:17-06:34/17 20:31
4	06:09 06:30-06:52/22 20:49	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:13	07:40 17:17	07:21 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 06:17-06:36/19 20:32
5	06:10 06:30-06:52/22 20:49	06:43 20:34	07:13 20:00	07:42 18:14	07:08 17:34	07:33 17:13	07:40 17:18	07:20 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 06:17-06:37/20 20:33
6	06:11 06:31-06:52/21 20:49	06:44 20:33	07:14 19:59	07:43 18:12	07:09 17:33	07:33 17:13	07:39 17:18	07:19 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 06:17-06:38/21 20:34
7	06:12 06:32-06:52/20 20:49	06:45 20:32	07:15 19:57	07:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 06:17-06:38/21 20:35
8	06:13 06:33-06:52/19 20:49	06:46 20:31	07:16 19:56	07:44 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 06:17-06:39/22 20:36
9	06:14 06:34-06:51/17 20:49	06:47 20:30	07:17 19:54	07:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 06:17-06:40/23 20:37
10	06:15 06:35-06:51/16 20:49	06:49 20:29	07:18 19:53	07:46 18:06	07:13 17:29	07:35 17:12	07:38 17:21	07:15 17:44	06:33 18:10	06:47 19:36	06:09 20:07	05:56 06:17-06:41/24 20:37
11	06:16 06:36-06:50/14 20:49	06:50 20:28	07:19 19:51	07:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	06:46 19:37	06:08 20:08	05:56 06:18-06:42/24 20:38
12	06:17 06:37-06:50/13 20:49	06:51 20:27	07:20 19:50	07:48 18:04	07:15 17:28	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	05:57 06:18-06:43/25 20:39
13	06:18 06:39-06:48/9 20:49	06:52 20:26	07:21 19:48	07:49 18:02	07:15 17:27	07:37 17:12	07:37 17:23	07:12 17:47	06:28 18:12	06:43 19:38	06:06 20:10	05:57 06:18-06:43/25 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	07:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:39	06:06 20:11	05:57 06:18-06:43/25 20:41
15	06:20 20:48	06:54 20:24	07:22 19:45	07:51 17:59	07:17 17:25	07:37 17:12	07:36 17:24	07:09 17:48	06:25 18:14	06:40 19:40	06:05 20:13	05:57 06:18-06:44/26 20:41
16	06:21 20:48	06:55 20:22	07:23 19:44	07:51 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	05:57 06:19-06:45/26 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	07:52 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 06:19-06:45/26 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	07:53 17:55	07:20 17:22	07:38 17:12	07:35 17:26	07:05 17:51	06:20 18:16	06:36 19:43	06:03 20:16	05:58 06:19-06:45/26 20:43
19	06:24 20:46	06:58 20:19	07:26 19:39	07:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:58 06:20-06:47/27 20:44
20	06:25 20:46	07:00 20:18	07:27 19:38	07:55 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:52	06:17 18:18	06:33 19:45	06:01 20:18	05:59 06:20-06:47/27 20:44
21	06:26 20:46	07:01 20:16	07:28 19:36	07:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 06:20-06:47/27 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	07:57 17:50	07:23 17:20	07:39 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 06:21-06:48/27 20:45
23	06:28 20:44	07:03 20:14	07:30 19:33	07:58 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 06:21-06:48/27 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	07:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:57 17:56	06:11 18:22	06:28 19:49	06:00 20:22	06:01 06:22-06:49/27 20:46
25	06:31 20:43	07:05 20:11	07:32 19:30	08:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	06:00 20:23	06:01 06:22-06:49/27 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	08:00 17:45	07:26 17:17	07:40 17:14	07:29 17:32	06:55 17:57	06:08 18:23	06:25 19:51	06:00 20:24	06:02 06:23-06:49/26 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	08:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	06:24 19:52	06:00 20:25	06:03 06:24-06:50/26 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	08:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	06:00 20:26	06:03 06:24-06:50/26 20:48
29	06:35 20:40		07:35 19:24	08:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:51 18:00	06:03 18:26	06:22 19:54	06:19-06:28/9 20:27	06:04 06:25-06:51/26 20:48
30	06:36 20:40		07:36 19:23	08:04 17:40	07:29 17:15	07:40 17:16	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	06:18-06:30/12 20:28	06:05 06:26-06:51/25 20:49
31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:02		06:19 19:56		06:06 06:26-06:51/25 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	244	0	0	0	0	0	0	0	0	21	0	743

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 15

Licensed user:

West Wind Energy Pty Ltd

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Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 4 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (576)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:22	06:43	05:57	06:16	05:56
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:21	06:42	06:56	06:15	05:56
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:20	06:40	06:54	06:14	05:56
6	06:11	06:44	07:14	06:43	07:09	07:33	07:39	07:19	06:39	06:53	06:13	05:56
7	06:12	06:45	07:15	06:43	07:10	07:34	07:39	07:18	06:37	06:51	06:12	05:56
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	05:56
9	06:14	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	06:48	06:10	05:56
10	06:15	06:49	07:18	06:46	07:13	07:35	07:38	07:15	06:33	06:47	06:09	05:56
11	06:16	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	06:46	06:08	05:56
12	06:17	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	06:44	06:07	05:57
13	06:18	06:52	07:21	06:49	07:15	07:37	07:37	07:12	06:28	06:43	06:06	05:57
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:10	06:27	06:41	06:06	05:57
15	06:20	06:54	07:23	06:51	07:17	07:37	07:36	07:09	06:25	06:40	06:05	05:57
16	06:21	06:55	07:23	06:51	07:18	07:38	07:36	07:08	06:24	06:38	06:04	05:57
17	06:22	06:56	07:24	06:52	07:19	07:38	07:35	07:07	06:22	06:37	06:03	05:58
18	06:23	06:57	07:25	06:53	07:20	07:38	07:35	07:05	06:20	06:36	06:03	05:58
19	06:24	06:58	07:26	06:54	07:20	07:39	07:34	07:04	06:19	06:34	06:02	05:58
20	06:25	07:00	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:01	05:59
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	05:59
22	06:27	07:02	07:29	06:57	07:23	07:39	07:32	07:00	06:14	06:30	06:00	06:00
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	06:28	05:59	06:01
25	06:31	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	06:01
26	06:32	07:06	07:33	07:00	07:26	07:40	07:29	06:55	06:08	06:25	05:58	06:02
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58	06:03
28	06:34	07:08	07:34	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
29	06:35	07:09	07:35	07:03	07:28	07:40	07:27	06:51	06:03	06:22	05:57	06:04
30	06:36	07:10	07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
31	06:37	07:11	07:37	07:05	07:30	07:40	07:25	06:48	06:01	06:19	05:56	06:06
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:
Yendon Wind Farm

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12/02/2015 10:01 AM / 16

Licensed user:
West Wind Energy Pty Ltd
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+61 3 5421 9999

Adam Gray / gray@w-wind.com.au
Calculated:
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 5 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (577)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:57	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	05:59 18:28	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:49	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:13	07:40 17:17	07:21 17:39	06:42 18:05	05:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:49	06:43 20:34	07:13 20:00	07:42 18:14	07:08 17:34	07:33 17:13	07:40 17:18	07:20 17:40	06:40 18:06	05:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:49	06:44 20:33	07:14 19:59	07:43 18:12	07:09 17:33	07:33 17:13	07:39 17:18	07:19 17:41	06:39 18:07	05:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:49	06:45 20:32	07:15 19:57	07:44 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	05:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:49	06:46 20:31	07:16 19:56	07:45 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	05:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	07:46 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	05:48 19:35	06:10 20:06	05:56 20:37
10	06:15 20:49	06:49 20:29	07:18 19:53	07:46 18:06	07:13 17:29	07:35 17:12	07:38 17:21	07:15 17:44	06:33 18:10	05:47 19:36	06:09 20:07	05:56 20:37
11	06:16 20:49	06:50 20:28	07:19 19:51	07:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	05:45 19:37	06:08 20:08	05:56 20:38
12	06:17 20:49	06:51 20:27	07:20 19:50	07:48 18:04	07:15 17:28	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:11	05:44 19:38	06:07 20:09	05:56 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	07:49 18:02	07:15 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 18:12	05:43 19:38	06:06 20:10	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	07:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	05:41 19:39	06:06 20:11	05:57 20:41
15	06:20 20:48	06:54 20:24	07:22 19:45	07:51 17:59	07:17 17:25	07:37 17:12	07:36 17:24	07:09 17:48	06:25 18:14	05:40 19:40	06:05 20:13	05:57 20:41
16	06:21 20:48	06:55 20:22	07:23 19:44	07:51 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	05:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	07:52 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	05:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	07:53 17:55	07:20 17:22	07:38 17:12	07:35 17:26	07:05 17:51	06:20 18:16	05:36 19:43	06:03 20:16	05:58 20:43
19	06:24 20:46	06:58 20:19	07:26 19:39	07:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	05:34 19:44	06:02 20:17	05:58 20:44
20	06:25 20:46	06:59 20:18	07:27 19:38	07:55 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:52	06:17 18:18	05:33 19:45	06:01 20:18	05:59 20:44
21	06:26 20:46	07:01 20:16	07:28 19:36	07:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	05:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	07:57 17:50	07:23 17:20	07:39 17:13	07:32 17:29	07:00 17:54	06:14 18:20	05:30 19:47	06:00 20:20	06:00 20:45
23	06:28 20:44	07:03 20:14	07:30 19:33	07:58 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 17:55	06:13 18:21	05:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	07:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:57 17:56	06:11 18:22	05:28 19:49	05:59 20:22	06:01 20:46
25	06:31 20:43	07:05 20:11	07:32 19:30	07:59 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	05:26 19:50	05:59 20:23	06:01 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	08:00 17:45	07:26 17:17	07:40 17:14	07:29 17:32	06:55 17:57	06:08 18:23	05:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	08:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	05:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	08:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	05:23 19:53	05:58 20:26	06:04 20:48
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30	06:36 20:40	07:10 19:53	07:36 19:23	08:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01	06:02 18:27	05:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39	07:11 19:51	07:37 19:21	08:05 17:41	07:29 17:15	07:40 17:15	07:25 17:36	06:48 18:02	06:19 19:56	05:19 19:56	06:06 20:09	06:06 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 17

Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street
AU-GISBORNE Victoria 3437

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Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 6 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (578)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:15	17:16	17:37	18:02	18:28	19:58	20:29
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:38	18:03	18:29	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:23	06:43	05:57	06:16	05:57
	20:49	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:22	06:42	06:56	06:15	05:56
	20:50	20:35	20:01	19:15	17:36	17:14	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:21	06:40	06:54	06:14	05:56
	20:50	20:34	20:00	18:14	17:35	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:19	06:39	06:53	06:13	05:56
	20:50	20:33	19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34
7	06:12	06:45	07:15	06:43	07:10	07:34	07:39	07:18	06:37	06:51	06:12	05:56
	20:50	20:32	19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	05:56
	20:49	20:31	19:56	18:09	17:31	17:13	17:20	17:42	18:08	19:34	20:05	20:36
9	06:14	06:48	07:17	06:45	07:12	07:35	07:39	07:16	06:34	06:48	06:10	05:56
	20:49	20:30	19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	20:37
10	06:15	06:49	07:18	06:46	07:13	07:35	07:38	07:15	06:33	06:47	06:09	05:56
	20:49	20:29	19:53	18:06	17:29	17:12	17:21	17:44	18:10	19:36	20:07	20:38
11	06:16	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	06:46	06:08	05:56
	20:49	20:28	19:51	18:05	17:29	17:12	17:21	17:45	18:11	19:37	20:08	20:38
12	06:17	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	06:44	06:07	05:57
	20:49	20:27	19:50	18:04	17:28	17:12	17:22	17:46	18:12	19:38	20:09	20:39
13	06:18	06:52	07:21	06:49	07:15	07:37	07:37	07:12	06:28	06:43	06:07	05:57
	20:49	20:26	19:48	18:02	17:27	17:12	17:23	17:47	18:12	19:39	20:10	20:40
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:10	06:27	06:41	06:06	05:57
	20:48	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:39	20:12	20:41
15	06:20	06:54	07:23	06:51	07:17	07:38	07:36	07:09	06:25	06:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:40	20:13	20:41
16	06:21	06:55	07:23	06:52	07:18	07:38	07:36	07:08	06:24	06:38	06:04	05:57
	20:48	20:23	19:44	17:58	17:24	17:12	17:25	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:35	07:07	06:22	06:37	06:03	05:58
	20:47	20:21	19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:05	06:21	06:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:23	17:12	17:26	17:51	18:17	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:20	07:39	07:34	07:04	06:19	06:34	06:02	05:59
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	07:00	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:02	05:59
	20:46	20:18	19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	20:45
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:32	07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
	20:44	20:14	19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	06:28	05:59	06:01
	20:44	20:12	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47
25	06:31	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	06:02
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:00	07:26	07:40	07:30	06:55	06:08	06:25	05:59	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:25	20:48
28	06:34	07:08	07:35	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:04	06:22	05:57	06:04
	20:40		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:27	20:48
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:16	17:35	18:01	18:27	19:55	20:28	20:49
31	06:37		07:37		07:29		07:25	06:48		06:19		06:06
	20:39		19:21		17:15		17:36	18:02		19:57		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project: Yendon Wind Farm

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Calculated: 11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 7 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (579)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

Table with 12 columns for months (January to December) and 31 rows for days. Each cell contains a time range (e.g., 06:07 | 20:49) representing shadow periods. Summary rows at the bottom show Potential sun hours and Sum of minutes with flicker for each month.

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

Matrix defining table layout: Day in month, Sun rise (hh:mm), Sun set (hh:mm), First time (hh:mm) with flicker, Last time (hh:mm) with flicker, Minutes with flicker.

Project:
Yendon Wind Farm

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12/02/2015 10:01 AM / 19
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Adam Gray / gray@w-wind.com.au
Calculated:
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 8 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (580)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:29
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:28	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:22	06:43	05:57	06:16	05:56
	20:49	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:21	06:42	06:56	06:15	05:56
	20:49	20:35	20:01	19:15	17:36	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:20	06:40	06:54	06:14	05:56
	20:50	20:34	20:00	18:14	17:34	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:19	06:39	06:53	06:13	05:56
	20:50	20:33	19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34
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	20:50	20:32	19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	05:56
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12	06:17	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	06:44	06:07	05:57
	20:49	20:27	19:50	18:04	17:28	17:12	17:22	17:46	18:12	19:38	20:09	20:39
13	06:18	06:52	07:21	06:49	07:15	07:37	07:37	07:12	06:28	06:43	06:06	05:57
	20:49	20:26	19:48	18:02	17:27	17:12	17:23	17:47	18:12	19:39	20:10	20:40
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:10	06:27	06:41	06:06	05:57
	20:48	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:39	20:12	20:41
15	06:20	06:54	07:23	06:51	07:17	07:37	07:36	07:09	06:25	06:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:40	20:13	20:41
16	06:21	06:55	07:23	06:51	07:18	07:38	07:36	07:08	06:24	06:38	06:04	05:57
	20:48	20:23	19:44	17:58	17:24	17:12	17:24	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:35	07:07	06:22	06:37	06:03	05:58
	20:47	20:21	19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:05	06:20	06:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12	17:26	17:51	18:16	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:20	07:39	07:34	07:04	06:19	06:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	07:00	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:01	05:59
	20:46	20:18	19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	20:44
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:32	07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
	20:44	20:14	19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	06:28	05:59	06:01
	20:44	20:12	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:46
25	06:31	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:00	07:26	07:40	07:30	06:55	06:08	06:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:25	20:48
28	06:34	07:08	07:34	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:03	06:22	05:57	06:04
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30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:16	17:35	18:01	18:27	19:55	20:28	20:49
31	06:37		07:37		07:29		07:25	06:48		06:19		06:06
	20:39		19:21		17:15		17:36	18:02		19:56		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 20

Licensed user:

West Wind Energy Pty Ltd
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+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 9 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (581)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:15	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:38	06:45 18:03	05:59 18:29	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:23 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:57 20:31
4	06:09 20:50	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:14	07:40 17:17	07:22 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	07:42 18:14	07:08 17:35	07:33 17:13	07:40 17:18	07:21 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:33	07:14 19:59	07:43 18:12	07:09 17:33	07:33 17:13	07:40 17:18	07:19 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:50	06:45 20:32	07:15 19:57	07:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:50	06:46 20:31	07:16 19:56	07:44 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:48 20:30	07:17 19:54	07:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
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12	06:17 20:49	06:51 20:27	07:20 19:50	07:48 18:04	07:15 17:28	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	05:57 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	07:49 18:02	07:15 17:27	07:37 17:12	07:37 17:23	07:12 17:47	06:28 18:12	06:43 19:39	06:06 20:10	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	07:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:40	06:06 20:12	05:57 20:41
15	06:20 20:48	06:54 20:24	07:23 19:45	07:51 17:59	07:17 17:25	07:38 17:12	07:36 17:24	07:09 17:48	06:25 18:14	06:40 19:40	06:05 20:13	05:57 20:41
16	06:21 20:48	06:55 20:23	07:23 19:44	07:52 17:58	07:18 17:24	07:38 17:12	07:36 17:25	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	07:53 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	07:54 17:55	07:20 17:23	07:39 17:12	07:35 17:26	07:05 17:51	06:21 18:17	06:36 19:43	06:03 20:16	05:58 20:43
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20	06:25 20:46	07:00 20:18	07:27 19:38	07:56 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:52	06:17 18:18	06:33 19:45	06:02 20:18	05:59 20:45
21	06:26 20:46	07:01 20:16	07:28 19:36	07:57 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	07:58 17:50	07:23 17:20	07:40 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:45	07:03 20:14	07:30 19:33	07:59 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	08:00 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:58 17:56	06:11 18:22	06:28 19:49	05:59 20:22	06:01 20:47
25	06:31 20:43	07:05 20:11	07:32 19:30	08:01 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	05:59 20:23	06:02 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	08:02 17:45	07:26 17:17	07:40 17:14	07:30 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	08:03 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:35 19:26	08:04 17:42	07:28 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	05:58 20:26	06:04 20:48
29	06:35 20:40		07:35 19:24	08:05 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:51 18:00	06:04 18:26	06:22 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 19:23	08:06 17:40	07:29 17:15	07:40 17:16	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:02		06:19 19:57		06:06 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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Licensed user:

West Wind Energy Pty Ltd

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AU-GISBORNE Victoria 3437

+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 10 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (582)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

Table with 12 columns for months (January-December) and rows for each day of the month. Columns contain time ranges (Sun rise to Sun set) and 'Potential sun hours'. The bottom row shows 'Sum of minutes with flicker' for each month.

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

Matrix layout table with 2 columns: Day in month and Sun rise/set times. It defines the structure of the data in the main table.

Project:

Yendon Wind Farm

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Licensed user:

West Wind Energy Pty Ltd

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Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 11 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (583)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	05:59 18:29	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:49	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:13	07:40 17:17	07:21 17:39	06:42 18:05	05:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:08 17:34	07:33 17:13	07:40 17:18	07:20 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
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7	06:12 20:50	06:45 20:32	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
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9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
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12	06:17 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:28	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	05:56 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:15 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 18:12	06:43 19:39	06:06 20:10	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:39	06:06 20:12	05:57 20:41
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16	06:21 20:48	06:55 20:23	07:23 19:44	06:51 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
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19	06:24 20:47	06:58 20:19	07:26 19:39	06:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:58 20:44
20	06:25 20:46	07:00 20:18	07:27 19:38	06:55 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:52	06:17 18:18	06:33 19:45	06:01 20:18	05:59 20:44
21	06:26 20:46	07:01 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:40 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:44	07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
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31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:02		06:19 19:56		06:06 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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 AU-GISBORNE Victoria 3437
 +61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 12 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (584)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:22	06:43	05:57	06:16	05:56
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:21	06:42	05:56	06:15	05:56
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:20	06:40	05:54	06:14	05:56
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:19	06:39	05:53	06:13	05:56
7	06:12	06:45	07:15	06:43	07:10	07:34	07:39	07:18	06:37	05:51	06:12	05:56
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	05:50	06:11	05:56
9	06:14	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	05:48	06:10	05:56
10	06:15	06:49	07:18	06:46	07:13	07:35	07:38	07:15	06:33	05:47	06:09	05:56
11	06:16	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	05:45	06:08	05:56
12	06:17	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	05:44	06:07	05:56
13	06:18	06:52	07:21	06:49	07:15	07:37	07:37	07:12	06:28	05:43	06:06	05:57
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:10	06:27	05:41	06:06	05:57
15	06:20	06:54	07:22	06:51	07:17	07:37	07:36	07:09	06:25	05:40	06:05	05:57
16	06:21	06:55	07:23	06:51	07:18	07:38	07:36	07:08	06:24	05:38	06:04	05:57
17	06:22	06:56	07:24	06:52	07:19	07:38	07:35	07:07	06:22	05:37	06:03	05:58
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:05	06:20	05:36	06:03	05:58
19	06:24	06:58	07:26	06:54	07:20	07:39	07:34	07:04	06:19	05:34	06:02	05:58
20	06:25	06:59	07:27	06:55	07:21	07:39	07:34	07:03	06:17	05:33	06:01	05:59
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	05:32	06:01	05:59
22	06:27	07:02	07:29	06:57	07:23	07:40	07:32	07:00	06:14	05:30	06:00	06:00
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	05:29	06:00	06:00
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	05:28	05:59	06:01
25	06:30	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	05:26	05:59	06:01
26	06:32	07:06	07:33	07:00	07:26	07:40	07:30	06:55	06:08	05:25	05:58	06:02
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	05:24	05:58	06:03
28	06:34	07:08	07:34	07:02	07:27	07:40	07:28	06:52	06:05	05:23	05:58	06:03
29	06:35	07:09	07:35	07:03	07:28	07:40	07:27	06:51	06:03	05:22	05:57	06:04
30	06:36	07:10	07:36	07:04	07:29	07:40	07:26	06:49	06:02	05:20	05:57	06:05
31	06:37	07:11	07:37	07:05	07:30	07:40	07:25	06:48	06:01	05:19	05:57	06:06
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:
Yendon Wind Farm

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Calculated:
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 13 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (585)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

Table with 12 columns (January to December) and 31 rows of shadow data. Each cell contains a day number and a time range (hh:mm). Summary row: Potential sun hours 447, Sum of minutes with flicker 0.

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

Matrix for table layout:
Day in month | Sun rise (hh:mm) | Sun set (hh:mm) | First time (hh:mm) with flicker | Last time (hh:mm) with flicker | Minutes with flicker

Project:

Yendon Wind Farm

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 14 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (586)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:29
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:28	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:22	06:43	05:57	06:16	05:56
	20:49	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:22	06:42	05:56	06:15	05:56
	20:50	20:35	20:01	19:15	17:36	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:20	06:40	05:54	06:14	05:56
	20:50	20:34	20:00	18:14	17:34	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:19	06:39	05:53	06:13	05:56
	20:50	20:33	19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34
7	06:12	06:45	07:15	06:43	07:10	07:34	07:39	07:18	06:37	05:51	06:12	05:56
	20:50	20:32	19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	05:50	06:11	05:56
	20:49	20:31	19:56	18:09	17:31	17:13	17:19	17:42	18:08	19:34	20:05	20:36
9	06:14	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	05:48	06:10	05:56
	20:49	20:30	19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	20:37
10	06:15	06:49	07:18	06:46	07:13	07:35	07:38	07:15	06:33	05:47	06:09	05:56
	20:49	20:29	19:53	18:06	17:29	17:12	17:21	17:44	18:10	19:36	20:07	20:38
11	06:16	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	05:45	06:08	05:56
	20:49	20:28	19:51	18:05	17:28	17:12	17:21	17:45	18:11	19:37	20:08	20:38
12	06:17	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	05:44	06:07	05:56
	20:49	20:27	19:50	18:04	17:27	17:12	17:22	17:46	18:12	19:38	20:09	20:39
13	06:18	06:52	07:21	06:49	07:15	07:37	07:37	07:12	06:28	05:43	06:06	05:57
	20:49	20:26	19:48	18:02	17:27	17:12	17:22	17:47	18:12	19:39	20:10	20:40
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:10	06:27	05:41	06:06	05:57
	20:48	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:39	20:12	20:41
15	06:20	06:54	07:23	06:51	07:17	07:38	07:36	07:09	06:25	05:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:40	20:13	20:41
16	06:21	06:55	07:23	06:51	07:18	07:38	07:36	07:08	06:24	05:38	06:04	05:57
	20:48	20:23	19:44	17:58	17:24	17:12	17:24	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:35	07:07	06:22	05:37	06:03	05:58
	20:47	20:21	19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:05	06:20	05:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12	17:26	17:51	18:16	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:20	07:39	07:34	07:04	06:19	05:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	06:59	07:27	06:55	07:21	07:39	07:34	07:03	06:17	05:33	06:01	05:59
	20:46	20:18	19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	20:45
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	05:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:32	07:00	06:14	05:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	05:29	06:00	06:00
	20:44	20:14	19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	05:28	05:59	06:01
	20:44	20:12	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47
25	06:30	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	05:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:00	07:26	07:40	07:30	06:55	06:08	05:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	05:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:25	20:48
28	06:34	07:08	07:34	07:02	07:27	07:40	07:28	06:52	06:05	05:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:03	05:22	05:57	06:04
	20:40		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:27	20:48
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	05:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15	17:35	18:01	18:27	19:55	20:28	20:49
31	06:37		07:37		07:29		07:25	06:48		05:19		06:06
	20:39		19:21		17:15		17:36	18:02		19:56		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 15 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (587)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:22-20:25/3 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:57	05:57 20:29
2	06:07 20:24-20:25/1 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	05:59 18:28	06:17 19:59	05:57 20:30
3	06:08 20:25-20:26/1 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:49	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:35	07:32 17:13	07:40 17:17	07:21 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:49	06:43 20:34	07:13 20:00	06:42 18:14	07:08 17:34	07:33 17:13	07:40 17:18	07:20 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:49	06:44 20:33	07:14 19:58	06:43 18:12	07:09 17:33	07:33 17:13	07:39 17:18	07:19 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:49	06:45 20:32	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:49	06:46 20:31	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
10	06:15 20:49	06:49 20:29	07:18 19:53	06:46 18:06	07:13 17:29	07:35 17:12	07:38 17:21	07:15 17:44	06:33 18:10	06:47 19:36	06:09 20:07	05:56 20:37
11	06:16 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	06:45 19:37	06:08 20:08	05:56 20:38
12	06:16 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:27	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:11	06:44 19:38	06:07 20:09	05:56 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:15 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 18:12	06:43 19:38	06:06 20:10	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:39	06:06 20:11	05:57 20:41
15	06:20 20:48	06:54 20:24	07:22 19:45	06:51 17:59	07:17 17:25	07:37 17:12	07:36 17:24	07:09 17:48	06:25 18:14	06:40 19:40	06:05 20:13	05:57 20:41
16	06:21 20:48	06:55 20:22	07:23 19:44	06:51 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	06:53 17:55	07:20 17:22	07:38 17:12	07:35 17:26	07:05 17:51	06:20 18:16	06:36 19:43	06:03 20:16	05:58 20:43
19	06:24 20:46	06:58 20:19	07:26 19:39	06:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:58 20:44
20	06:25 20:46	06:59 20:18	07:27 19:38	06:55 17:52	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:52	06:17 18:18	06:33 19:45	06:01 20:18	05:59 20:44
21	06:26 20:46	07:01 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:01 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:39 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:44	07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:29	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:57 17:56	06:11 18:22	06:28 19:49	05:59 20:22	06:01 20:46
25	06:30 20:43	07:05 20:11	07:32 19:30	06:59 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	05:59 20:23	06:01 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:29 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	05:58 20:26	06:03 20:48
29	06:35 20:40		07:35 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:50 18:00	06:03 18:26	06:22 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 19:23	07:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39		07:37 19:21	07:05 17:40	07:29 17:15	07:40 17:15	07:25 17:36	06:48 18:02	06:19 19:56		06:05 20:29	06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	5	0	0	0	0	0	0	0	0	0	0	106

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 27

Licensed user:

West Wind Energy Pty Ltd
Office 5, Level 1, Nexus Centre 12-14 Prince Street
AU-GISBORNE Victoria 3437
+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 16 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (588)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:57	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	05:59 18:28	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:49	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:35	07:32 17:13	07:40 17:17	07:21 17:39	06:42 18:05	05:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:08 17:34	07:33 17:13	07:40 17:18	07:20 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:33	07:14 19:59	06:43 18:12	07:09 17:33	07:33 17:13	07:39 17:18	07:19 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:50	06:45 20:32	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:49	06:46 20:31	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
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11	06:15 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	06:45 19:37	06:08 20:08	05:56 20:38
12	06:16 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:27	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:11	06:44 19:38	06:07 20:09	05:56 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:15 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 18:12	06:43 19:38	06:06 20:10	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:39	06:06 20:11	05:57 20:41
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16	06:21 20:48	06:55 20:22	07:23 19:44	06:51 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	06:53 17:55	07:20 17:22	07:38 17:12	07:35 17:26	07:05 17:51	06:20 18:16	06:36 19:43	06:03 20:16	05:58 20:43
19	06:24 20:47	06:58 20:19	07:26 19:39	06:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:58 20:44
20	06:25 20:46	06:59 20:18	07:27 19:38	06:55 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:52	06:17 18:18	06:33 19:45	06:01 20:18	05:59 20:44
21	06:26 20:46	07:01 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:39 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:44	07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:29	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:57 17:56	06:11 18:22	06:28 19:49	05:59 20:22	06:01 20:46
25	06:30 20:43	07:05 20:11	07:32 19:30	07:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	05:59 20:23	06:01 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:29 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	05:58 20:26	06:03 20:48
29	06:35 20:40		07:35 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:51 18:00	06:03 18:26	06:22 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 19:23	07:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:02		06:19 19:56		06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 28

Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street
AU-GISBORNE Victoria 3437
+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 17 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (589)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:06 20:49	06:38 20:38	07:09 20:06	07:38 18:41-18:58/17 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:57	05:57 20:29
2	06:07 20:49	06:39 20:37	07:10 20:04	07:39 18:40-18:57/17 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	06:59 18:28	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 18:40-18:55/15 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04	06:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:49	06:42 20:35	07:12 20:01	07:41 18:40-18:54/14 19:15	07:08 17:35	07:32 17:13	07:40 17:17	07:21 17:39	06:42 17:39-17:44/5 18:05	06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:49	06:43 20:34	07:13 20:00	06:42 17:40-17:52/12 18:14	07:08 17:34	07:33 17:13	07:40 17:18	07:20 17:40	06:40 17:38-17:45/7 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:33	07:14 19:58	06:43 17:40-17:50/10 18:12	07:09 17:33	07:33 17:13	07:39 17:18	07:19 17:41	06:39 17:36-17:46/10 18:06	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:49	06:45 20:32	07:15 19:57	06:43 17:41-17:48/7 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 17:35-17:47/12 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:49	06:46 20:31	07:16 19:56	06:44 17:42-17:47/5 18:09	07:11 17:31	07:34 17:12	07:39 17:19	07:17 17:42	06:36 17:34-17:48/14 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 17:34-17:49/15 18:09	06:48 19:35	06:10 20:06	05:56 20:37
10	06:14 20:49	06:49 20:29	07:18 19:53	06:46 18:06	07:13 17:29	07:35 17:12	07:38 17:21	07:15 17:44	06:33 17:33-17:49/16 18:10	06:47 19:36	06:09 20:07	05:56 20:37
11	06:15 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 17:33-17:51/18 18:11	06:45 19:37	06:08 20:08	05:56 20:38
12	06:16 20:49	06:51 20:27	07:20 19:50	06:48 18:03	07:15 17:27	07:36 17:12	07:38 17:22	07:13 17:46	06:30 17:33-17:51/18 18:11	06:44 19:38	06:07 20:09	05:56 20:39
13	06:17 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:15 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 17:33-17:50/17 18:12	06:43 19:38	06:06 20:10	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 17:35-17:49/14 18:13	06:41 19:39	06:06 20:11	05:57 20:41
15	06:20 20:48	06:54 20:24	07:22 19:45	06:51 17:59	07:17 17:25	07:37 17:12	07:36 17:24	07:09 17:48	06:25 17:36-17:46/10 18:14	06:40 19:40	06:05 20:13	05:57 20:41
16	06:21 20:48	06:55 20:22	07:23 19:44	06:51 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 17:40-17:43/3 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	06:53 17:55	07:20 17:22	07:38 17:12	07:35 17:26	07:05 17:51	06:20 18:16	06:36 19:43	06:03 20:16	05:58 20:43
19	06:24 20:47	06:58 20:19	07:26 19:39	06:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:58 20:44
20	06:25 20:46	06:59 20:18	07:27 19:38	06:55 17:52	07:21 17:21	07:39 17:12	07:34 17:27	07:03 17:52	06:17 18:18	06:33 19:45	06:01 20:18	05:59 20:44
21	06:26 20:46	07:01 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:39 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:44	07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:29	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:57 17:56	06:11 18:22	06:28 19:49	05:59 20:22	06:01 20:46
25	06:30 20:43	07:05 20:11	07:32 19:30	06:59 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	05:59 20:23	06:01 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:29 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:33 19:27	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 18:46-18:56/10 19:26	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	05:58 20:26	06:03 20:48
29	06:35 20:40		07:35 18:44-18:58/14 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:50 18:00	06:03 18:26	06:22 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 18:43-18:59/16 19:23	07:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39		07:37 18:41-18:59/18 19:21	07:05 17:40	07:29 17:15	07:40 17:15	07:25 17:36	06:48 18:02		06:19 19:56	06:05 20:29	06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	58	97	0	0	0	0	159	0	0	0

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

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

Project:

Yendon Wind Farm

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Licensed user:

West Wind Energy Pty Ltd
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AU-GISBORNE Victoria 3437
+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 18 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (590)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:29
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:28	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:22	06:43	05:57	06:16	05:56
	20:49	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:21	06:42	05:56	06:15	05:56
	20:49	20:35	20:01	19:15	17:35	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:20	06:40	06:54	06:14	05:56
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	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
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31	06:37		07:37		07:29		07:25	06:48		06:19		06:05
	20:39		19:21		17:15		17:36	18:02		19:56		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 30

Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street

AU-GISBORNE Victoria 3437

+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG**WTG: 19 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (591)****Assumptions for shadow calculations**

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	05:59 18:29	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:23 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:50	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:13	07:40 17:17	07:22 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:09 17:34	07:33 17:13	07:40 17:18	07:21 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:33	07:14 19:59	06:43 18:12	07:09 17:33	07:33 17:13	07:40 17:18	07:19 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:50	06:45 20:32	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:50	06:46 20:31	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
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12	06:17 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:28	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	05:56 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:15 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 18:12	06:43 19:39	06:06 20:10	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:39	06:06 20:12	05:57 20:41
15	06:20 20:48	06:54 20:24	07:23 19:45	06:51 17:59	07:17 17:25	07:38 17:12	07:37 17:24	07:09 17:48	06:25 18:14	06:40 19:40	06:05 20:13	05:57 20:41
16	06:21 20:48	06:55 20:23	07:23 19:44	06:52 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:36 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	06:53 17:55	07:20 17:22	07:39 17:12	07:35 17:26	07:05 17:51	06:21 18:17	06:36 19:43	06:03 20:16	05:58 20:43
19	06:24 20:47	06:58 20:19	07:26 19:39	06:54 17:54	07:20 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:58 20:44
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22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:40 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:45	07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
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Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 31

Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street
AU-GISBORNE Victoria 3437
+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 20 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (592)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:29
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:24	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:29	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:23	06:43	05:57	06:16	05:56
	20:50	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:22	06:42	06:56	06:15	05:56
	20:50	20:35	20:01	19:15	17:36	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:09	07:33	07:40	07:21	06:40	06:54	06:14	05:56
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19	06:24	06:58	07:26	06:54	07:21	07:39	07:34	07:04	06:19	06:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	07:00	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:01	05:59
	20:46	20:18	19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	20:45
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:33	07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
	20:45	20:14	19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	06:28	05:59	06:01
	20:44	20:12	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47
25	06:31	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:01	07:26	07:40	07:30	06:55	06:08	06:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:25	20:48
28	06:34	07:08	07:35	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:04	06:22	05:57	06:04
	20:41		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:27	20:48
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15	17:35	18:01	18:27	19:56	20:28	20:49
31	06:37		07:37		07:30		07:25	06:48		06:19		06:06
	20:39		19:21		17:15		17:36	18:02		19:57		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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Licensed user:

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 21 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (593)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:24 17:37	06:45 18:03	05:59 18:29	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:23 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:50	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:13	07:40 17:17	07:22 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:09 17:34	07:33 17:13	07:40 17:18	07:21 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:33	07:14 19:59	06:43 18:12	07:09 17:33	07:33 17:13	07:40 17:18	07:20 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:50	06:45 20:33	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:50	06:46 20:31	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
10	06:15 20:49	06:49 20:29	07:18 19:53	06:46 18:06	07:13 17:29	07:35 17:12	07:39 17:21	07:15 17:44	06:33 18:10	06:47 19:36	06:09 20:07	05:56 20:38
11	06:16 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	06:46 19:37	06:08 20:08	05:56 20:38
12	06:17 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:28	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	05:56 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:15 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 18:12	06:43 19:39	06:06 20:11	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:40	06:06 20:12	05:57 20:41
15	06:20 20:48	06:54 20:24	07:23 19:45	06:51 17:59	07:17 17:25	07:38 17:12	07:37 17:24	07:09 17:48	06:25 18:14	06:40 19:40	06:05 20:13	05:57 20:41
16	06:21 20:48	06:55 20:23	07:23 19:44	06:52 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:36 17:25	07:07 17:50	06:22 18:16	06:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	06:53 17:55	07:20 17:22	07:39 17:12	07:35 17:26	07:06 17:51	06:21 18:17	06:36 19:43	06:03 20:16	05:58 20:43
19	06:24 20:47	06:58 20:19	07:26 19:39	06:54 17:54	07:21 17:22	07:39 17:12	07:34 17:27	07:04 17:52	06:19 18:17	06:34 19:44	06:02 20:17	05:58 20:44
20	06:25 20:46	07:00 20:18	07:27 19:38	06:55 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 17:52	06:17 18:18	06:33 19:45	06:01 20:18	05:59 20:45
21	06:26 20:46	07:01 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:40 17:13	07:33 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:45	07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:58 17:56	06:11 18:22	06:28 19:49	05:59 20:22	06:01 20:47
25	06:30 20:43	07:05 20:11	07:32 19:30	07:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	05:59 20:23	06:01 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:30 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	05:58 20:26	06:03 20:48
29	06:35 20:40		07:35 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:51 18:00	06:04 18:26	06:22 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 19:23	07:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39		07:37 19:21		07:30 17:15		07:25 17:36	06:48 18:02		06:19 19:57		06:06 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 22 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (594)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:29
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:24	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:29	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:32	07:40	07:23	06:43	05:57	06:16	05:56
	20:50	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:22	06:42	06:56	06:15	05:56
	20:50	20:35	20:01	19:15	17:36	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:09	07:33	07:40	07:21	06:40	06:54	06:14	05:56
	20:50	20:34	20:00	18:14	17:34	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:20	06:39	06:53	06:13	05:56
	20:50	20:34	19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34
7	06:12	06:45	07:15	06:44	07:10	07:34	07:39	07:18	06:37	06:51	06:12	05:56
	20:50	20:33	19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	05:56
	20:50	20:32	19:56	18:09	17:31	17:13	17:19	17:42	18:08	19:34	20:05	20:36
9	06:14	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	06:48	06:10	05:56
	20:49	20:30	19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	20:37
10	06:15	06:49	07:18	06:46	07:13	07:35	07:39	07:15	06:33	06:47	06:09	05:56
	20:49	20:29	19:53	18:06	17:29	17:12	17:21	17:44	18:10	19:36	20:07	20:38
11	06:16	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	06:46	06:08	05:56
	20:49	20:28	19:51	18:05	17:28	17:12	17:21	17:45	18:11	19:37	20:08	20:38
12	06:17	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	06:44	06:07	05:56
	20:49	20:27	19:50	18:04	17:28	17:12	17:22	17:46	18:12	19:38	20:09	20:39
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	20:49	20:26	19:48	18:02	17:27	17:12	17:22	17:47	18:12	19:39	20:11	20:40
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:10	06:27	06:41	06:06	05:57
	20:49	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:40	20:12	20:41
15	06:20	06:54	07:23	06:51	07:17	07:38	07:37	07:09	06:25	06:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:40	20:13	20:41
16	06:21	06:55	07:23	06:52	07:18	07:38	07:36	07:08	06:24	06:38	06:04	05:57
	20:48	20:23	19:44	17:58	17:24	17:12	17:24	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:36	07:07	06:22	06:37	06:03	05:58
	20:47	20:21	19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:06	06:21	06:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12	17:26	17:51	18:17	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:21	07:39	07:34	07:04	06:19	06:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	07:00	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:01	05:59
	20:46	20:18	19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	20:45
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:33	07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
	20:45	20:14	19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	06:28	05:59	06:01
	20:44	20:12	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47
25	06:30	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:01	07:26	07:40	07:30	06:55	06:08	06:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:25	20:48
28	06:34	07:08	07:35	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:04	06:22	05:57	06:04
	20:41		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:28	20:48
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15	17:35	18:01	18:27	19:56	20:28	20:49
31	06:37		07:37		07:30		07:25	06:48		06:19		06:06
	20:39		19:21		17:15		17:36	18:02		19:57		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 23 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (595)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:24	06:45	05:59	06:17	05:57
3	06:08	06:41	07:11	07:40	07:07	07:32	07:40	07:23	06:43	05:57	06:16	05:56
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:22	06:42	05:56	06:15	05:56
5	06:10	06:43	07:13	07:42	07:09	07:33	07:40	07:21	06:40	05:54	06:14	05:56
6	06:11	06:44	07:14	07:43	07:09	07:33	07:40	07:20	06:39	05:53	06:13	05:56
7	06:12	06:45	07:15	07:44	07:10	07:34	07:39	07:18	06:37	05:51	06:12	05:56
8	06:13	06:46	07:16	07:45	07:11	07:34	07:39	07:17	06:36	05:50	06:11	05:56
9	06:14	06:47	07:17	07:46	07:12	07:35	07:39	07:16	06:34	05:48	06:10	05:56
10	06:15	06:49	07:18	07:47	07:13	07:35	07:39	07:15	06:33	05:47	06:09	05:56
11	06:16	06:50	07:19	07:48	07:14	07:36	07:38	07:14	06:31	05:46	06:08	05:56
12	06:17	06:51	07:20	07:49	07:15	07:36	07:38	07:13	06:30	05:44	06:07	05:56
13	06:18	06:52	07:21	07:50	07:16	07:37	07:37	07:12	06:28	05:43	06:06	05:57
14	06:19	06:53	07:22	07:51	07:16	07:37	07:37	07:11	06:27	05:41	06:06	05:57
15	06:20	06:54	07:23	07:52	07:17	07:38	07:37	07:09	06:25	05:40	06:05	05:57
16	06:21	06:55	07:24	07:53	07:18	07:38	07:36	07:08	06:24	05:38	06:04	05:57
17	06:22	06:56	07:24	07:54	07:19	07:38	07:36	07:07	06:22	05:37	06:03	05:58
18	06:23	06:57	07:25	07:55	07:20	07:39	07:35	07:06	06:21	05:36	06:03	05:58
19	06:24	06:58	07:26	07:56	07:21	07:39	07:34	07:04	06:19	05:34	06:02	05:58
20	06:25	07:00	07:27	07:57	07:21	07:39	07:34	07:03	06:17	05:33	06:01	05:59
21	06:26	07:01	07:28	07:58	07:22	07:39	07:33	07:02	06:16	05:32	06:01	05:59
22	06:27	07:02	07:29	07:59	07:23	07:40	07:33	07:00	06:14	05:30	06:00	06:00
23	06:28	07:03	07:30	08:00	07:24	07:40	07:32	06:59	06:13	05:29	06:00	06:00
24	06:29	07:04	07:31	08:01	07:24	07:40	07:31	06:58	06:11	05:28	05:59	06:01
25	06:31	07:05	07:32	08:02	07:25	07:40	07:30	06:56	06:10	05:26	05:59	06:01
26	06:32	07:06	07:33	08:03	07:26	07:40	07:30	06:55	06:08	05:25	05:58	06:02
27	06:33	07:07	07:34	08:04	07:27	07:40	07:29	06:53	06:07	05:24	05:58	06:03
28	06:34	07:08	07:35	08:05	07:27	07:40	07:28	06:52	06:05	05:23	05:58	06:03
29	06:35	07:09	07:36	08:06	07:28	07:40	07:27	06:51	06:04	05:22	05:57	06:04
30	06:36	07:10	07:37	08:07	07:29	07:40	07:26	06:49	06:02	05:21	05:57	06:05
31	06:37	07:11	07:38	08:08	07:30	07:40	07:25	06:48	06:01	05:20	05:57	06:06
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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Licensed user:

West Wind Energy Pty Ltd

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 AU-GISBORNE Victoria 3437
 +61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 24 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (596)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:24 17:37	06:45 18:03	05:59 18:29	06:17 19:59	05:57 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:23 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:50	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:13	07:40 17:17	07:22 17:39	06:42 18:05	05:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:09 17:34	07:33 17:13	07:40 17:18	07:21 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:33	07:14 19:59	06:43 18:12	07:09 17:33	07:33 17:13	07:40 17:18	07:20 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:50	06:45 20:33	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:50	06:46 20:31	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
10	06:15 20:49	06:49 20:29	07:18 19:53	06:46 18:06	07:13 17:29	07:35 17:12	07:39 17:21	07:15 17:44	06:33 18:10	06:47 19:36	06:09 20:07	05:56 20:38
11	06:16 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	06:46 19:37	06:08 20:08	05:56 20:38
12	06:17 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:27	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	05:56 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:16 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 18:12	17:49-17:52/3	06:43 19:39	05:57 20:40
14	06:19 20:48	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	17:46-17:53/7	06:41 19:40	05:57 20:41
15	06:20 20:48	06:54 20:24	07:23 19:45	06:51 17:59	07:17 17:25	07:38 17:12	07:37 17:24	07:09 17:48	06:25 18:14	17:44-17:53/9	06:40 19:40	05:57 20:41
16	06:21 20:48	06:55 20:23	07:23 19:44	06:52 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	17:43-17:55/12	06:38 19:41	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:36 17:25	07:07 17:50	06:22 18:16	17:42-17:55/13	06:37 19:42	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	06:53 17:55	07:20 17:22	07:39 17:12	07:35 17:26	07:06 17:51	06:21 18:17	17:42-17:56/14	06:36 19:43	05:58 20:43
19	06:24 20:47	06:58 20:19	07:26 19:39	19:00-19:11/11	06:54 17:54	07:21 17:22	07:39 17:27	07:34 17:52	07:04 18:17	17:41-17:57/16	06:34 19:44	05:58 20:44
20	06:25 20:46	06:59 20:18	07:27 19:38	18:58-19:13/15	06:55 17:53	07:21 17:21	07:39 17:13	07:34 17:27	07:03 18:18	17:41-17:58/17	06:33 19:45	05:59 20:45
21	06:26 20:46	07:01 20:16	07:28 19:36	18:57-19:14/17	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 18:19	17:41-17:59/18	06:32 19:46	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	18:56-19:13/17	06:57 17:50	07:23 17:20	07:40 17:13	07:33 17:29	07:00 18:20	17:41-17:59/18	06:30 19:47	06:00 20:46
23	06:28 20:45	07:03 20:14	07:30 19:33	18:55-19:12/17	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:30	06:59 18:21	17:42-17:58/16	06:29 19:48	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	18:54-19:10/16	06:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:58 18:22	17:43-17:55/12	06:28 19:49	06:01 20:47
25	06:30 20:43	07:05 20:11	07:32 19:30	18:54-19:09/15	07:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 18:22	17:46-17:52/6	06:26 19:50	06:01 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	18:54-19:08/14	07:00 17:45	07:26 17:17	07:40 17:14	07:30 17:32	06:55 18:23		06:25 19:51	06:02 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	18:54-19:06/12	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 18:24		06:24 19:52	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	18:54-19:04/10	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 18:25		06:23 19:53	06:03 20:48
29	06:35 20:40		07:35 19:24	18:55-19:02/7	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:51 18:26		06:22 19:54	06:04 20:48
30	06:36 20:40		07:36 19:23	18:57-19:01/4	07:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01		06:20 19:55	06:05 20:49
31	06:37 20:39		07:37 19:21			07:30 17:15		07:25 17:36	06:48 18:02		06:19 19:57	06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	155	0	0	0	0	0	161	0	0	0

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

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

Project:

Yendon Wind Farm

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Licensed user:

West Wind Energy Pty Ltd
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AU-GISBORNE Victoria 3437
+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 25 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (597)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:25	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:30
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:24	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:29	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:32	07:40	07:23	06:43	05:57	06:16	05:56
	20:50	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:22	06:42	05:56	06:15	05:56
	20:50	20:35	20:01	19:15	17:36	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:09	07:33	07:40	07:21	06:40	05:54	06:14	05:56
	20:50	20:35	20:00	18:14	17:34	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:20	06:39	05:53	06:13	05:56
	20:50	20:34	19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34
7	06:12	06:45	07:15	06:44	07:10	07:34	07:39	07:19	06:37	05:51	06:12	05:56
	20:50	20:33	19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	05:50	06:11	05:56
	20:50	20:32	19:56	18:09	17:31	17:13	17:19	17:42	18:08	19:34	20:05	20:36
9	06:14	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	05:48	06:10	05:56
	20:50	20:31	19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	20:37
10	06:15	06:49	07:18	06:46	07:13	07:35	07:39	07:15	06:33	05:47	06:09	05:56
	20:49	20:29	19:53	18:06	17:29	17:12	17:21	17:44	18:10	19:36	20:07	20:38
11	06:16	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	05:46	06:08	05:56
	20:49	20:28	19:51	18:05	17:28	17:12	17:21	17:45	18:11	19:37	20:08	20:38
12	06:17	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	05:44	06:07	05:56
	20:49	20:27	19:50	18:04	17:28	17:12	17:22	17:46	18:12	19:38	20:09	20:39
13	06:18	06:52	07:21	06:49	07:16	07:37	07:37	07:12	06:28	05:43	06:06	05:57
	20:49	20:26	19:48	18:02	17:27	17:12	17:22	17:47	18:12	19:39	20:11	20:40
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:11	06:27	05:41	06:06	05:57
	20:49	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:40	20:12	20:41
15	06:20	06:54	07:23	06:51	07:17	07:38	07:37	07:09	06:25	05:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:41	20:13	20:41
16	06:21	06:55	07:24	06:52	07:18	07:38	07:36	07:08	06:24	05:38	06:04	05:57
	20:48	20:23	19:44	17:58	17:24	17:12	17:24	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:36	07:07	06:22	05:37	06:03	05:58
	20:48	20:21	19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:06	06:21	05:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12	17:26	17:51	18:17	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:21	07:39	07:34	07:04	06:19	05:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	07:00	07:27	06:55	07:21	07:39	07:34	07:03	06:17	05:33	06:01	05:59
	20:46	20:18	19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	20:45
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	05:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:33	07:00	06:14	05:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	05:29	06:00	06:00
	20:45	20:14	19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:25	07:40	07:31	06:58	06:11	05:28	05:59	06:01
	20:44	20:13	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47
25	06:31	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	05:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:01	07:26	07:40	07:30	06:55	06:08	05:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	05:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:26	20:48
28	06:34	07:08	07:35	07:02	07:27	07:40	07:28	06:52	06:05	05:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:27	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:04	05:22	05:57	06:04
	20:41		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:28	20:48
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	05:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15	17:35	18:01	18:27	19:56	20:29	20:49
31	06:37		07:37		07:30		07:25	06:48		05:19		06:06
	20:39		19:21		17:15		17:36	18:02		19:57		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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Licensed user:

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Office 5, Level 1, Nexus Centre 12-14 Prince Street
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Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 26 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (598)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:24 17:37	06:45 18:03	05:59 18:29	06:17 19:59	05:57 20:30
3	06:08 20:50	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	07:31 17:14	07:40 17:17	07:23 17:38	06:43 18:04	05:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:50	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	07:32 17:13	07:40 17:17	07:22 17:39	06:42 18:05	06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	06:42 18:14	07:09 17:34	07:33 17:13	07:40 17:18	07:21 17:40	06:40 18:06	06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:34	07:14 19:59	06:43 18:12	07:09 17:33	07:33 17:13	07:40 17:18	07:20 17:41	06:39 18:07	06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:50	06:45 20:33	07:15 19:57	06:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:42	06:37 18:07	06:51 19:33	06:12 20:04	05:56 20:35
8	06:13 20:50	06:46 20:32	07:16 19:56	06:44 18:09	07:11 17:31	07:34 17:13	07:39 17:19	07:17 17:42	06:36 18:08	06:50 19:34	06:11 20:05	05:56 20:36
9	06:14 20:49	06:47 20:30	07:17 19:54	06:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09	06:48 19:35	06:10 20:06	05:56 20:37
10	06:15 20:49	06:49 20:29	07:18 19:53	06:46 18:06	07:13 17:29	07:35 17:12	07:39 17:21	07:15 17:44	06:33 18:10	06:47 19:36	06:09 20:07	05:56 20:38
11	06:15 20:49	06:50 20:28	07:19 19:51	06:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11	06:46 19:37	06:08 20:08	05:56 20:38
12	06:16 20:49	06:51 20:27	07:20 19:50	06:48 18:04	07:15 17:27	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:12	06:44 19:38	06:07 20:09	05:56 20:39
13	06:18 20:49	06:52 20:26	07:21 19:48	06:49 18:02	07:16 17:27	07:37 17:12	07:37 17:22	07:12 17:47	06:28 18:12	06:43 19:39	06:06 20:11	05:57 20:40
14	06:19 20:49	06:53 20:25	07:22 19:47	06:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13	06:41 19:40	19:15-19:18/3	06:06 20:12
15	06:20 20:48	06:54 20:24	07:23 19:45	06:51 17:59	07:17 17:25	07:38 17:12	07:37 17:24	07:09 17:48	06:25 18:14	06:40 19:40	19:13-19:20/7	06:05 20:13
16	06:21 20:48	06:55 20:23	07:23 19:44	06:52 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:24 18:15	06:38 19:41	19:13-19:21/8	06:04 20:14
17	06:22 20:47	06:56 20:21	19:47-19:51/4	07:24 19:42	06:52 17:57	07:19 17:23	07:38 17:12	07:07 17:25	06:22 18:16	06:37 19:42	19:11-19:21/10	06:03 20:15
18	06:23 20:47	06:57 20:20	19:45-19:55/10	07:25 19:41	06:53 17:55	07:20 17:22	07:39 17:12	07:06 17:26	06:21 18:17	06:36 19:43	19:11-19:23/12	06:03 20:16
19	06:24 20:47	06:58 20:19	19:43-19:56/13	07:26 19:39	06:54 17:54	07:21 17:22	07:39 17:12	07:04 17:27	06:19 18:17	06:34 19:44	19:11-19:24/13	06:02 20:17
20	06:25 20:46	06:59 20:18	19:42-19:56/14	07:27 19:38	06:55 17:53	07:21 17:21	07:39 17:13	07:03 17:27	06:17 18:18	06:33 19:45	19:11-19:24/13	06:01 20:18
21	06:26 20:46	07:01 20:16	19:41-19:55/14	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:02 17:28	06:16 18:19	06:32 19:46	19:11-19:25/14	06:01 20:19
22	06:27 20:45	07:02 20:15	19:40-19:53/13	07:29 19:35	06:57 17:50	07:23 17:20	07:40 17:13	07:00 17:29	06:14 18:20	06:30 19:47	19:12-19:27/15	06:00 20:20
23	06:28 20:45	07:03 20:14	19:40-19:52/12	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	06:59 17:30	06:13 18:21	06:29 19:48	19:13-19:25/12	06:00 20:21
24	06:29 20:44	07:04 20:12	19:40-19:51/11	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:58 18:22	06:11 19:49	19:14-19:24/10	05:59 20:22
25	06:30 20:43	07:05 20:11	19:40-19:49/9	07:32 19:30	07:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 18:22	06:10 19:50		05:59 20:23
26	06:32 20:43	07:06 20:10	19:41-19:48/7	07:33 19:29	07:01 17:45	07:26 17:17	07:40 17:14	06:55 17:32	06:08 18:23	06:25 19:51		05:58 20:24
27	06:33 20:42	07:07 20:08	19:41-19:47/6	07:34 19:27	07:01 17:44	07:27 17:17	07:40 17:14	06:53 17:33	06:07 18:24	06:24 19:52		05:58 20:25
28	06:34 20:41	07:08 20:07	19:43-19:45/2	07:34 19:26	07:02 17:42	07:27 17:16	07:40 17:15	06:52 17:33	06:05 18:25	06:23 19:53		05:58 20:26
29	06:35 20:41			07:35 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 18:00	06:04 18:26	06:22 19:54		05:57 20:27
30	06:36 20:40			07:36 19:23	07:04 17:40	07:29 17:15	07:40 17:15	06:49 18:01	06:02 18:27	06:20 19:55		05:57 20:28
31	06:37 20:39			07:37 19:21		07:30 17:15		06:48 18:02		06:19 19:57		06:05 20:29
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	115	0	0	0	0	0	0	0	117	0	0

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

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

Project:
Yendon Wind Farm

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+61 3 5421 9999
Adam Gray / gray@w-wind.com.au
Calculated:
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 27 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (599)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:25	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:30
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:24	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:29	19:59	20:31
3	06:08	06:41	07:11	07:40	07:07	07:32	07:40	07:23	06:43	05:57	06:16	05:56
	20:50	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:22	06:42	06:56	06:15	05:56
	20:50	20:35	20:01	19:15	17:36	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:09	07:33	07:40	07:21	06:40	06:54	06:14	05:56
	20:50	20:35	20:00	18:14	17:34	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:20	06:39	06:53	06:13	05:56
	20:50	20:34	19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34
7	06:12	06:45	07:15	06:44	07:10	07:34	07:39	07:19	06:37	06:51	06:12	05:56
	20:50	20:33	19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	05:56
	20:50	20:32	19:56	18:09	17:31	17:13	17:19	17:42	18:08	19:34	20:05	20:36
9	06:14	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	06:48	06:10	05:56
	20:50	20:31	19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	20:37
10	06:15	06:49	07:18	06:46	07:13	07:35	07:39	07:15	06:33	06:47	06:09	05:56
	20:49	20:29	19:53	18:06	17:29	17:12	17:21	17:44	18:10	19:36	20:07	20:38
11	06:16	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	06:46	06:08	05:56
	20:49	20:28	19:51	18:05	17:28	17:12	17:21	17:45	18:11	19:37	20:08	20:38
12	06:17	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	06:44	06:07	05:56
	20:49	20:27	19:50	18:04	17:28	17:12	17:22	17:46	18:12	19:38	20:09	20:39
13	06:18	06:52	07:21	06:49	07:16	07:37	07:38	07:12	06:28	06:43	06:06	05:57
	20:49	20:26	19:48	18:02	17:27	17:12	17:22	17:47	18:12	19:39	20:11	20:40
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:11	06:27	06:41	06:06	05:57
	20:49	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:40	20:12	20:41
15	06:20	06:54	07:23	06:51	07:17	07:38	07:37	07:09	06:25	06:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:41	20:13	20:41
16	06:21	06:55	07:24	06:52	07:18	07:38	07:36	07:08	06:24	06:38	06:04	05:57
	20:48	20:23	19:44	17:58	17:24	17:12	17:24	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:36	07:07	06:22	06:37	06:03	05:58
	20:48	20:21	19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:06	06:21	06:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12	17:26	17:51	18:17	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:21	07:39	07:34	07:04	06:19	06:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	07:00	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:01	05:59
	20:46	20:18	19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	20:45
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:33	07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
	20:45	20:14	19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:25	07:40	07:31	06:58	06:11	06:28	05:59	06:01
	20:44	20:13	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47
25	06:31	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:01	07:26	07:40	07:30	06:55	06:08	06:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:48
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:26	20:48
28	06:34	07:08	07:35	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:27	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:04	06:22	05:57	06:04
	20:41		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:55	20:28	20:49
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15	17:35	18:01	18:27	19:56	20:29	20:49
31	06:37		07:37		07:30		07:25	06:48		06:19		06:06
	20:39		19:21		17:15		17:36	18:02		19:57		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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 Adam Gray / gray@w-wind.com.au
 Calculated:
 11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 28 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (600)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
 The sun is shining all the day, from sunrise to sunset
 The rotor plane is always perpendicular to the line from the WTG to the sun
 The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	16:57-17:12/15 17:14	07:30 17:16	07:40 17:16	07:24 17:37	17:06-17:15/9 18:02	06:46 18:28	06:00 19:58	06:18 20:30
2	06:07 20:49	06:40 20:37	07:10 20:04	07:39 19:18	07:06 17:38	16:55-17:12/17 17:14	07:31 17:16	07:40 17:16	07:24 17:37	17:05-17:16/11 18:03	06:45 18:29	06:17 19:59	06:57 20:30
3	06:08 20:50	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:37	16:55-17:12/17 17:14	07:32 17:17	07:40 17:17	07:23 17:38	17:05-17:17/12 18:04	06:43 18:29	06:57 20:00	06:16 20:31
4	06:09 20:50	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:36	16:54-17:12/18 17:13	07:32 17:17	07:40 17:17	07:22 17:39	17:04-17:18/14 18:05	06:42 18:06	06:56 19:30	06:15 20:32
5	06:10 20:50	06:43 20:34	07:13 20:00	07:42 18:14	07:09 17:34	16:54-17:11/17 17:13	07:33 17:18	07:40 17:18	07:21 17:40	17:04-17:19/15 18:06	06:40 18:06	06:54 19:31	06:14 20:33
6	06:11 20:50	06:44 20:34	07:14 19:59	07:43 18:12	07:09 17:33	16:54-17:10/16 17:13	07:33 17:18	07:40 17:18	07:20 17:41	17:04-17:20/16 18:07	06:39 18:07	06:53 19:32	06:13 20:34
7	06:12 20:50	06:45 20:33	07:15 19:57	07:44 18:11	07:10 17:32	16:53-17:09/16 17:13	07:34 17:19	07:39 17:19	07:18 17:42	17:03-17:20/17 18:07	06:37 18:07	06:51 19:33	06:12 20:35
8	06:13 20:50	06:46 20:32	07:16 19:56	07:44 18:09	07:11 17:31	16:54-17:08/14 17:13	07:34 17:19	07:39 17:19	07:17 17:42	17:03-17:21/18 18:08	06:36 18:08	06:50 19:34	06:11 20:36
9	06:14 20:50	06:47 20:30	07:17 19:54	07:45 18:08	07:12 17:30	16:54-17:07/13 17:12	07:35 17:20	07:39 17:20	07:16 17:43	17:03-17:22/19 18:09	06:34 18:09	06:48 19:35	06:10 20:37
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Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456	
Sum of minutes with flicker	0	0	0	18	185	0	14	192	0	0	0	0	

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 40

Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street

AU-GISBORNE Victoria 3437

+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 29 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (601)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
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31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:02		06:19 19:56		06:06 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 41

Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street
 AU-GISBORNE Victoria 3437
 +61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 30 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (602)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:06 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:57	05:57 20:29
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25	06:30 20:43	07:05 20:11	07:32 19:30	06:59 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	05:59 20:23	06:01 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:29 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:33 19:27	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:06 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	05:58 20:26	06:03 20:48
29	06:35 20:40	07:09 19:24	07:35 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:50 18:00	06:03 18:26	06:21 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40	07:10 19:23	07:36 19:23	07:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39	07:11 19:21	07:37 19:21	07:05 17:39	07:29 17:15	07:40 17:15	07:25 17:36	06:48 18:01	06:19 19:56	06:19 19:56	06:05 20:29	06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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Licensed user:

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Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 31 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (603)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:07	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:29
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:29	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:23	06:43	05:57	06:16	05:56
	20:49	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:22	06:42	06:56	06:15	05:56
	20:50	20:35	20:01	19:15	17:36	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:21	06:40	06:54	06:14	05:56
	20:50	20:34	20:00	18:14	17:34	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:19	06:39	06:53	06:13	05:56
	20:50	20:33	19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34
7	06:12	06:45	07:15	06:43	07:10	07:34	07:39	07:18	06:37	06:51	06:12	05:56
	20:50	20:32	19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	05:56
	20:50	20:31	19:56	18:09	17:31	17:13	17:19	17:42	18:08	19:34	20:05	20:36
9	06:14	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	06:48	06:10	05:56
	20:49	20:30	19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	20:37
10	06:15	06:49	07:18	06:46	07:13	07:35	07:39	07:15	06:33	06:47	06:09	05:56
	20:49	20:29	19:53	18:06	17:29	17:12	17:21	17:44	18:10	19:36	20:07	20:38
11	06:16	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	06:45	06:08	05:56
	20:49	20:28	19:51	18:05	17:28	17:12	17:21	17:45	18:11	19:37	20:08	20:38
12	06:16	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	06:44	06:07	05:56
	20:49	20:27	19:50	18:04	17:27	17:12	17:22	17:46	18:12	19:38	20:09	20:39
13	06:18	06:52	07:21	06:49	07:15	07:37	07:37	07:12	06:28	06:43	06:06	05:57
	20:49	20:26	19:48	18:02	17:27	17:12	17:22	17:47	18:12	19:39	20:10	20:40
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:10	06:27	06:41	06:06	05:57
	20:48	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:39	20:12	20:41
15	06:20	06:54	07:23	06:51	07:17	07:38	07:37	07:09	06:25	06:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:40	20:13	20:41
16	06:21	06:55	07:23	06:52	07:18	07:38	07:36	07:08	06:24	06:38	06:04	05:57
	20:48	20:23	19:44	17:58	17:24	17:12	17:24	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:35	07:07	06:22	06:37	06:03	05:58
	20:47	20:21	19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:05	06:20	06:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12	17:26	17:51	18:16	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:20	07:39	07:34	07:04	06:19	06:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	06:59	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:01	05:59
	20:46	20:18	19:38	17:53	17:21	17:13	17:27	17:52	18:18	19:45	20:18	20:45
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:32	07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
	20:45	20:14	19:33	17:49	17:19	17:13	17:30	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	06:28	05:59	06:01
	20:44	20:12	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47
25	06:30	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:00	07:26	07:40	07:30	06:55	06:08	06:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:25	20:48
28	06:34	07:08	07:34	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:03	06:22	05:57	06:04
	20:40		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:27	20:48
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15	17:35	18:01	18:27	19:55	20:28	20:49
31	06:37		07:37		07:29		07:25	06:48		06:19		06:05
	20:39		19:21		17:15		17:36	18:02		19:57		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 32 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (604)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:06	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:37	18:02	18:28	19:58	20:29
2	06:07	06:40	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:28	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:22	06:43	05:57	06:16	05:56
	20:49	20:36	20:03	19:17	17:37	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:08	07:32	07:40	07:21	06:42	06:56	06:15	05:56
	20:50	20:35	20:01	19:15	17:35	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:20	06:40	06:54	06:14	05:56
	20:50	20:34	20:00	18:14	17:34	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:43	07:09	07:33	07:40	07:19	06:39	06:53	06:13	05:56
	20:50	20:33	19:59	18:12	17:33	17:13	17:18	17:41	18:07	19:32	20:03	20:34
7	06:12	06:45	07:15	06:43	07:10	07:34	07:39	07:18	06:37	06:51	06:12	05:56
	20:50	20:32	19:57	18:11	17:32	17:13	17:19	17:42	18:07	19:33	20:04	20:35
8	06:13	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	05:56
	20:49	20:31	19:56	18:09	17:31	17:12	17:19	17:42	18:08	19:34	20:05	20:36
9	06:14	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	06:48	06:10	05:56
	20:49	20:30	19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	20:37
10	06:14	06:49	07:18	06:46	07:13	07:35	07:38	07:15	06:33	06:47	06:09	05:56
	20:49	20:29	19:53	18:06	17:29	17:12	17:21	17:44	18:10	19:36	20:07	20:38
11	06:15	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	06:45	06:08	05:56
	20:49	20:28	19:51	18:05	17:28	17:12	17:21	17:45	18:11	19:37	20:08	20:38
12	06:16	06:51	07:20	06:48	07:15	07:36	07:38	07:13	06:30	06:44	06:07	05:56
	20:49	20:27	19:50	18:04	17:27	17:12	17:22	17:46	18:11	19:38	20:09	20:39
13	06:17	06:52	07:21	06:49	07:15	07:37	07:37	07:12	06:28	06:43	06:06	05:57
	20:49	20:26	19:48	18:02	17:27	17:12	17:22	17:47	18:12	19:39	20:10	20:40
14	06:19	06:53	07:22	06:50	07:16	07:37	07:37	07:10	06:27	06:41	06:06	05:57
	20:48	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:39	20:12	20:41
15	06:20	06:54	07:22	06:51	07:17	07:38	07:36	07:09	06:25	06:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:40	20:13	20:41
16	06:21	06:55	07:23	06:51	07:18	07:38	07:36	07:08	06:24	06:38	06:04	05:57
	20:48	20:23	19:44	17:58	17:24	17:12	17:24	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:35	07:07	06:22	06:37	06:03	05:58
	20:47	20:21	19:42	17:57	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:39	07:35	07:05	06:20	06:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12	17:26	17:51	18:16	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:20	07:39	07:34	07:04	06:19	06:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12	17:27	17:52	18:17	19:44	20:17	20:44
20	06:25	06:59	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:01	05:59
	20:46	20:18	19:38	17:53	17:21	17:12	17:27	17:52	18:18	19:45	20:18	20:45
21	06:26	07:01	07:28	06:56	07:22	07:39	07:33	07:02	06:16	06:32	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:02	07:29	06:57	07:23	07:40	07:32	07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13	17:29	17:54	18:20	19:47	20:20	20:46
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
	20:44	20:14	19:33	17:49	17:19	17:13	17:29	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:58	06:11	06:28	05:59	06:01
	20:44	20:12	19:32	17:47	17:18	17:13	17:30	17:56	18:22	19:49	20:22	20:47
25	06:30	07:05	07:32	07:00	07:25	07:40	07:30	06:56	06:10	06:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14	17:31	17:57	18:22	19:50	20:23	20:47
26	06:32	07:06	07:33	07:00	07:26	07:40	07:30	06:55	06:08	06:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:34	07:01	07:27	07:40	07:29	06:53	06:07	06:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14	17:33	17:58	18:24	19:52	20:25	20:48
28	06:34	07:08	07:34	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:51	06:03	06:22	05:57	06:04
	20:40		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:27	20:48
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15	17:35	18:01	18:27	19:55	20:28	20:49
31	06:37		07:37		07:29		07:25	06:48		06:19		06:05
	20:39		19:21		17:15		17:36	18:02		19:56		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 33 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (605)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:06 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
2	06:07 20:49	06:39 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	05:59 18:28	06:17 19:59	05:57 20:30
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Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	187	0	0	0	0	0	0	0	0	0	101	87

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 45

Licensed user:

West Wind Energy Pty Ltd
Office 5, Level 1, Nexus Centre 12-14 Prince Street
AU-GISBORNE Victoria 3437
+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 34 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (606)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:06 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:57	05:57 20:29
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31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:01		06:19 19:56		06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

Printed/Page

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Licensed user:

West Wind Energy Pty Ltd

Office 5, Level 1, Nexus Centre 12-14 Prince Street

AU-GISBORNE Victoria 3437

+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 35 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (607)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:06 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:37	06:46 18:02	06:00 18:28	06:18 19:58	05:57 20:29
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21	06:26 20:46	07:00 20:16	07:28 19:36	06:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:02 17:53	06:16 18:19	06:32 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:02 20:15	07:29 19:35	06:57 17:50	07:23 17:20	07:40 17:13	07:32 17:29	07:00 17:54	06:14 18:20	06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:44	07:03 20:14	07:30 19:33	06:58 17:49	07:24 17:19	07:40 17:13	07:32 17:29	06:59 17:55	06:13 18:21	06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	06:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	06:57 17:56	06:11 18:22	06:28 19:49	05:59 20:22	06:01 20:47
25	06:30 20:43	07:05 20:11	07:32 19:30	07:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	06:56 17:57	06:10 18:22	06:26 19:50	05:59 20:23	06:01 20:47
26	06:32 20:43	07:06 20:10	07:33 19:29	07:00 17:45	07:26 17:17	07:40 17:14	07:30 17:32	06:55 17:57	06:08 18:23	06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:34 19:27	07:01 17:44	07:27 17:17	07:40 17:14	07:29 17:33	06:53 17:58	06:07 18:24	06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	07:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25	06:23 19:53	05:58 20:26	06:03 20:48
29	06:35 20:40		07:35 19:24	07:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:51 18:00	06:03 18:26	06:21 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 19:23	07:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	06:49 18:01	06:02 18:27	06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:02		06:19 19:56		06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 47

Licensed user:

West Wind Energy Pty Ltd

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AU-GISBORNE Victoria 3437
+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 36 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (608)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December		
1	06:06	06:38	07:09	07:38	07:05	07:30	08:08-08:13/5	07:40	08:07-08:25/18	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14		17:16	17:37	18:02	18:28	19:57	20:29	
2	06:07	06:39	07:10	07:39	07:06	07:31	08:07-08:15/8	07:40	08:07-08:25/18	07:23	06:45	05:59	06:17	05:57
	20:49	20:37	20:04	19:18	17:38	17:14		17:16	17:37	18:03	18:28	19:59	20:30	
3	06:08	06:41	07:11	07:40	07:07	07:31	08:05-08:15/10	07:40	08:08-08:25/17	07:22	06:43	05:57	06:16	05:56
	20:49	20:36	20:03	19:17	17:37	17:14		17:17	17:38	18:04	18:29	20:00	20:31	
4	06:09	06:42	07:12	07:41	07:08	07:32	08:05-08:17/12	07:40	08:09-08:25/16	07:21	06:42	06:56	06:15	05:56
	20:49	20:35	20:01	19:15	17:35	17:13		17:17	17:39	18:05	19:30	20:01	20:32	
5	06:10	06:43	07:13	06:42	07:08	07:33	08:05-08:18/13	07:40	08:09-08:25/16	07:20	06:40	06:54	06:14	05:56
	20:50	20:34	20:00	18:14	17:34	17:13		17:18	17:40	18:06	19:31	20:02	20:33	
6	06:11	06:44	07:14	06:42	07:09	07:33	08:04-08:18/14	07:39	08:10-08:25/15	07:19	06:39	06:53	06:13	05:56
	20:50	20:33	19:58	18:12	17:33	17:13		17:18	17:41	18:06	19:32	20:03	20:34	
7	06:12	06:45	07:15	06:43	07:10	07:34	08:04-08:19/15	07:39	08:10-08:24/14	07:18	06:37	06:51	06:12	05:56
	20:49	20:32	19:57	18:11	17:32	17:13		17:19	17:41	18:07	19:33	20:04	20:35	
8	06:13	06:46	07:16	06:44	07:11	07:34	08:03-08:19/16	07:39	08:11-08:24/13	07:17	06:36	06:50	06:11	05:56
	20:49	20:31	19:56	18:09	17:31	17:12		17:19	17:42	18:08	19:34	20:05	20:36	
9	06:13	06:47	07:17	06:45	07:12	07:35	08:03-08:20/17	07:39	08:12-08:24/12	07:16	06:34	06:48	06:10	05:56
	20:49	20:30	19:54	18:08	17:30	17:12		17:20	17:43	18:09	19:35	20:06	20:37	
10	06:14	06:48	07:18	06:46	07:13	07:35	08:03-08:20/17	07:38	08:13-08:22/9	07:15	06:33	06:47	06:09	05:56
	20:49	20:29	19:53	18:06	17:29	17:12		17:20	17:44	18:10	19:36	20:07	20:37	
11	06:15	06:50	07:19	06:47	07:14	07:36	08:03-08:21/18	07:38	08:15-08:21/6	07:14	06:31	06:45	06:08	05:56
	20:49	20:28	19:51	18:05	17:28	17:12		17:21	17:45	18:11	19:37	20:08	20:38	
12	06:16	06:51	07:20	06:48	07:15	07:36	08:03-08:21/18	07:38		07:13	06:30	06:44	06:07	05:56
	20:49	20:27	19:50	18:03	17:27	17:12		17:22	17:46	18:11	19:38	20:09	20:39	
13	06:17	06:52	07:21	06:49	07:15	07:37	08:03-08:22/19	07:37		07:12	06:28	06:43	06:06	05:57
	20:49	20:26	19:48	18:02	17:26	17:12		17:22	17:46	18:12	19:38	20:10	20:40	
14	06:18	06:53	07:21	06:50	07:16	07:37	08:03-08:22/19	07:37		07:10	06:27	06:41	06:06	05:57
	20:48	20:25	19:47	18:01	17:26	17:12		17:23	17:47	18:13	19:39	20:11	20:41	
15	06:19	06:54	07:22	06:51	07:17	07:37	08:04-08:23/19	07:36		07:09	06:25	06:40	06:05	05:57
	20:48	20:24	19:45	17:59	17:25	17:12		17:24	17:48	18:14	19:40	20:13	20:41	
16	06:21	06:55	07:23	06:51	07:18	07:38	08:03-08:22/19	07:36		07:08	06:24	06:38	06:04	05:57
	20:48	20:22	19:44	17:58	17:24	17:12		17:24	17:49	18:15	19:41	20:14	20:42	
17	06:22	06:56	07:24	06:52	07:19	07:38	08:03-08:22/19	07:35		07:07	06:22	06:37	06:03	05:58
	20:47	20:21	19:42	17:56	17:23	17:12		17:25	17:50	18:16	19:42	20:15	20:43	
18	06:23	06:57	07:25	06:53	07:20	07:38	08:04-08:23/19	07:35		07:05	06:20	06:36	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12		17:26	17:51	18:16	19:43	20:16	20:43	
19	06:24	06:58	07:26	06:54	07:20	07:39	08:04-08:23/19	07:34		07:04	06:19	06:34	06:02	05:58
	20:47	20:19	19:39	17:54	17:22	17:12		17:26	17:51	18:17	19:44	20:17	20:44	
20	06:25	06:59	07:27	06:55	07:21	07:39	08:04-08:23/19	07:34		07:03	06:17	06:33	06:01	05:59
	20:46	20:18	19:38	17:52	17:21	17:12		17:27	17:52	18:18	19:45	20:18	20:44	
21	06:26	07:00	07:28	06:56	07:22	07:39	08:05-08:24/19	07:33		07:01	06:16	06:31	06:01	05:59
	20:46	20:16	19:36	17:51	17:20	17:13		17:28	17:53	18:19	19:46	20:19	20:45	
22	06:27	07:02	07:29	06:57	07:23	07:39	08:05-08:24/19	07:32		07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:20	17:13		17:29	17:54	18:20	19:47	20:20	20:46	
23	06:28	07:03	07:30	06:58	07:24	07:40	08:05-08:24/19	07:32		06:59	06:13	06:29	06:00	06:00
	20:44	20:14	19:33	17:49	17:19	17:13		17:29	17:55	18:21	19:48	20:21	20:46	
24	06:29	07:04	07:31	06:59	07:24	07:40	08:05-08:24/19	07:31		06:57	06:11	06:28	05:59	06:01
	20:44	20:12	19:32	17:47	17:18	17:13		17:30	17:56	18:21	19:49	20:22	20:46	
25	06:30	07:05	07:32	06:59	07:25	07:40	08:05-08:24/19	07:30		06:56	06:10	06:26	05:59	06:01
	20:43	20:11	19:30	17:46	17:18	17:14		17:31	17:56	18:22	19:50	20:23	20:47	
26	06:32	07:06	07:33	07:00	07:26	07:40	08:05-08:24/19	07:29		06:55	06:08	06:25	05:58	06:02
	20:43	20:10	19:29	17:45	17:17	17:14		17:32	17:57	18:23	19:51	20:24	20:47	
27	06:33	07:07	07:33	07:01	07:27	07:40	08:06-08:24/18	07:29		06:53	06:06	06:24	05:58	06:03
	20:42	20:08	19:27	17:44	17:17	17:14		17:33	17:58	18:24	19:52	20:25	20:48	
28	06:34	07:08	07:34	07:02	07:27	07:40	08:06-08:25/19	07:28		06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15		17:33	17:59	18:25	19:53	20:26	20:48	
29	06:35		07:35	07:03	07:28	07:40	08:06-08:25/19	07:27		06:50	06:03	06:21	05:57	06:04
	20:40		19:24	17:41	17:16	17:15		17:34	18:00	18:26	19:54	20:27	20:48	
30	06:36		07:36	07:04	07:29	07:40	08:07-08:25/18	07:26		06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15		17:35	18:01	18:27	19:55	20:28	20:49	
31	06:37		07:37		07:29			07:25		06:48		06:19		06:05
	20:39		19:21		17:15			17:36		18:01		19:56		20:49
Potential sun hours	447	378	383	334	314	288		305		332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	503		154		0	0	0	0	0

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

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

Project:

Yendon Wind Farm

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12/02/2015 10:01 AM / 48

Licensed user:

West Wind Energy Pty Ltd

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AU-GISBORNE Victoria 3437

+61 3 5421 9999

Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 37 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (609)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	06:06	06:38	07:09	07:38	07:05	07:30	07:40	07:24	06:46	06:00	06:18	05:57
	20:49	20:38	20:06	19:20	17:39	17:14	17:16	17:36	18:02	18:28	19:57	20:29
2	06:07	06:39	07:10	07:39	07:06	07:31	07:40	07:23	06:45	05:59	06:17	05:56
	20:49	20:37	20:04	19:18	17:38	17:14	17:16	17:37	18:03	18:28	19:59	20:30
3	06:08	06:41	07:11	07:40	07:07	07:31	07:40	07:22	06:43	05:57	06:16	05:56
	20:49	20:36	20:03	19:17	17:36	17:14	17:17	17:38	18:04	18:29	20:00	20:31
4	06:09	06:42	07:12	07:41	07:07	07:32	07:40	07:21	06:42	06:56	06:15	05:56
	20:49	20:35	20:01	19:15	17:35	17:13	17:17	17:39	18:05	19:30	20:01	20:32
5	06:10	06:43	07:13	06:42	07:08	07:33	07:40	07:20	06:40	06:54	06:14	05:56
	20:49	20:34	20:00	18:14	17:34	17:13	17:18	17:40	18:06	19:31	20:02	20:33
6	06:11	06:44	07:14	06:42	07:09	07:33	07:39	07:19	06:39	06:53	06:13	05:56
	20:49	20:33	19:58	18:12	17:33	17:13	17:18	17:41	18:06	19:32	20:03	20:34
7	06:12	06:45	07:15	06:43	07:10	07:34	07:39	07:18	06:37	06:51	06:12	05:56
	20:49	20:32	19:57	18:11	17:32	17:13	17:19	17:41	18:07	19:33	20:04	20:35
8	06:12	06:46	07:16	06:44	07:11	07:34	07:39	07:17	06:36	06:50	06:11	05:56
	20:49	20:31	19:56	18:09	17:31	17:12	17:19	17:42	18:08	19:34	20:05	20:36
9	06:13	06:47	07:17	06:45	07:12	07:35	07:39	07:16	06:34	06:48	06:10	05:56
	20:49	20:30	19:54	18:08	17:30	17:12	17:20	17:43	18:09	19:35	20:06	20:37
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	20:49	20:29	19:53	18:06	17:29	17:12	17:20	17:44	18:10	19:36	20:07	20:37
11	06:15	06:50	07:19	06:47	07:14	07:36	07:38	07:14	06:31	06:45	06:08	05:56
	20:49	20:28	19:51	18:05	17:28	17:12	17:21	17:45	18:11	19:37	20:08	20:38
12	06:16	06:51	07:20	06:48	07:14	07:36	07:38	07:13	06:30	06:44	06:07	05:56
	20:49	20:27	19:50	18:03	17:27	17:12	17:22	17:46	18:11	19:37	20:09	20:39
13	06:17	06:52	07:20	06:49	07:15	07:37	07:37	07:12	06:28	06:42	06:06	05:56
	20:49	20:26	19:48	18:02	17:26	17:12	17:22	17:46	18:12	19:38	20:10	20:40
14	06:18	06:53	07:21	06:50	07:16	07:37	07:37	07:10	06:27	06:41	06:05	05:57
	20:48	20:25	19:47	18:01	17:26	17:12	17:23	17:47	18:13	19:39	20:11	20:41
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	20:48	20:24	19:45	17:59	17:25	17:12	17:24	17:48	18:14	19:40	20:13	20:41
16	06:21	06:55	07:23	06:51	07:18	07:38	07:36	07:08	06:23	06:38	06:04	05:57
	20:48	20:22	19:44	17:58	17:24	17:12	17:24	17:49	18:15	19:41	20:14	20:42
17	06:22	06:56	07:24	06:52	07:19	07:38	07:35	07:07	06:22	06:37	06:03	05:58
	20:47	20:21	19:42	17:56	17:23	17:12	17:25	17:50	18:16	19:42	20:15	20:43
18	06:23	06:57	07:25	06:53	07:20	07:38	07:35	07:05	06:20	06:35	06:03	05:58
	20:47	20:20	19:41	17:55	17:22	17:12	17:26	17:51	18:16	19:43	20:16	20:43
19	06:24	06:58	07:26	06:54	07:20	07:39	07:34	07:04	06:19	06:34	06:02	05:58
	20:46	20:19	19:39	17:54	17:22	17:12	17:26	17:51	18:17	19:44	20:17	20:44
20	06:25	06:59	07:27	06:55	07:21	07:39	07:34	07:03	06:17	06:33	06:01	05:59
	20:46	20:18	19:38	17:52	17:21	17:12	17:27	17:52	18:18	19:45	20:18	20:44
21	06:26	07:00	07:28	06:56	07:22	07:39	07:33	07:01	06:16	06:31	06:01	05:59
	20:45	20:16	19:36	17:51	17:20	17:13	17:28	17:53	18:19	19:46	20:19	20:45
22	06:27	07:01	07:29	06:57	07:23	07:39	07:32	07:00	06:14	06:30	06:00	06:00
	20:45	20:15	19:35	17:50	17:19	17:13	17:29	17:54	18:20	19:47	20:20	20:45
23	06:28	07:03	07:30	06:58	07:24	07:40	07:32	06:59	06:13	06:29	06:00	06:00
	20:44	20:14	19:33	17:48	17:19	17:13	17:29	17:55	18:21	19:48	20:21	20:46
24	06:29	07:04	07:31	06:59	07:24	07:40	07:31	06:57	06:11	06:28	05:59	06:01
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	20:42	20:10	19:29	17:45	17:17	17:14	17:32	17:57	18:23	19:51	20:24	20:47
27	06:33	07:07	07:33	07:01	07:27	07:40	07:29	06:53	06:06	06:24	05:58	06:03
	20:42	20:08	19:27	17:43	17:17	17:14	17:32	17:58	18:24	19:52	20:25	20:48
28	06:34	07:08	07:34	07:02	07:27	07:40	07:28	06:52	06:05	06:23	05:58	06:03
	20:41	20:07	19:26	17:42	17:16	17:15	17:33	17:59	18:25	19:53	20:26	20:48
29	06:35		07:35	07:03	07:28	07:40	07:27	06:50	06:03	06:21	05:57	06:04
	20:40		19:24	17:41	17:16	17:15	17:34	18:00	18:26	19:54	20:27	20:48
30	06:36		07:36	07:04	07:29	07:40	07:26	06:49	06:02	06:20	05:57	06:05
	20:40		19:23	17:40	17:15	17:15	17:35	18:01	18:27	19:55	20:28	20:49
31	06:37		07:37		07:29		07:25	06:48		06:19		06:05
	20:39		19:21		17:15		17:36	18:01		19:56		20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	404	424	456
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

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Adam Gray / gray@w-wind.com.au

Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG

WTG: 38 - REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (610)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	06:06 20:49	06:38 20:38	07:09 20:06	07:38 19:20	07:05 17:39	07:30 17:14	07:40 17:16	07:24 17:36	06:46 18:02	07:09-07:21/12	06:00 18:28	06:18 19:57	05:57 20:29
2	06:07 20:49	06:39 20:37	07:10 20:04	07:39 19:18	07:06 17:38	07:31 17:14	07:40 17:16	07:23 17:37	06:45 18:03	07:12-07:19/7	06:59 18:28	06:17 19:59	05:56 20:30
3	06:08 20:49	06:41 20:36	07:11 20:03	07:40 19:17	07:07 17:36	07:31 17:14	07:40 17:17	07:22 17:38	06:43 18:04		06:57 18:29	06:16 20:00	05:56 20:31
4	06:09 20:49	06:42 20:35	07:12 20:01	07:41 19:15	07:08 17:35	07:32 17:13	07:40 17:17	07:21 17:39	06:42 18:05		06:56 19:30	06:15 20:01	05:56 20:32
5	06:10 20:49	06:43 20:34	07:13 20:00	07:42 18:14	07:08 17:34	07:33 17:13	07:40 17:18	07:20 17:40	06:40 18:06		06:54 19:31	06:14 20:02	05:56 20:33
6	06:11 20:50	06:44 20:33	07:14 19:58	07:42 18:12	07:09 17:33	07:33 17:13	07:39 17:18	07:19 17:41	06:39 18:06		06:53 19:32	06:13 20:03	05:56 20:34
7	06:12 20:49	06:45 20:32	07:15 19:57	07:43 18:11	07:10 17:32	07:34 17:13	07:39 17:19	07:18 17:41	06:37 18:07		06:51 19:33	06:12 20:04	05:56 20:35
8	06:12 20:49	06:46 20:31	07:16 19:56	07:44 18:09	07:11 17:31	07:34 17:12	07:39 17:19	07:17 17:42	06:36 18:08		06:50 19:34	06:11 20:05	05:56 20:36
9	06:13 20:49	06:47 20:30	07:17 19:54	07:45 18:08	07:12 17:30	07:35 17:12	07:39 17:20	07:16 17:43	06:34 18:09		06:48 19:35	06:10 20:06	05:56 20:37
10	06:14 20:49	06:48 20:29	07:18 19:53	07:46 18:06	07:13 17:29	07:35 17:12	07:38 17:20	07:15 17:44	06:33 18:10		06:47 19:36	06:09 20:07	05:56 20:37
11	06:15 20:49	06:50 20:28	07:19 19:51	07:47 18:05	07:14 17:28	07:36 17:12	07:38 17:21	07:14 17:45	06:31 18:11		06:45 19:37	06:08 20:08	05:56 20:38
12	06:16 20:49	06:51 20:27	07:20 19:50	07:48 18:03	07:15 17:27	07:36 17:12	07:38 17:22	07:13 17:46	06:30 18:11		06:44 19:37	06:07 20:09	05:56 20:39
13	06:17 20:49	06:52 20:26	07:21 19:48	07:49 18:02	07:15 17:26	07:37 17:12	07:37 17:22	07:12 17:46	06:28 18:12		06:43 19:38	06:06 20:10	05:56 20:40
14	06:18 20:48	06:53 20:25	07:21 19:47	07:50 18:01	07:16 17:26	07:37 17:12	07:37 17:23	07:10 17:47	06:27 18:13		06:41 19:39	06:05 20:11	05:57 20:41
15	06:19 20:48	06:54 20:24	07:22 19:45	07:51 17:59	07:17 17:25	07:37 17:12	07:36 17:24	07:09 17:48	06:25 18:14		06:40 19:40	06:05 20:13	05:57 20:41
16	06:21 20:48	06:55 20:22	07:23 19:44	07:51 17:58	07:18 17:24	07:38 17:12	07:36 17:24	07:08 17:49	06:23 18:15		06:38 19:41	06:04 20:14	05:57 20:42
17	06:22 20:47	06:56 20:21	07:24 19:42	07:52 17:56	07:19 17:23	07:38 17:12	07:35 17:25	07:07 17:50	06:22 18:16		06:37 19:42	06:03 20:15	05:58 20:43
18	06:23 20:47	06:57 20:20	07:25 19:41	07:53 17:55	07:20 17:22	07:38 17:12	07:35 17:26	07:05 17:51	06:20 18:16		06:36 19:43	06:03 20:16	05:58 20:43
19	06:24 20:47	06:58 20:19	07:26 19:39	07:54 17:54	07:20 17:22	07:39 17:12	07:34 17:26	07:04 17:51	06:19 18:17		06:34 19:44	06:02 20:17	05:58 20:44
20	06:25 20:46	06:59 20:18	07:27 19:38	07:55 17:52	07:21 17:21	07:39 17:12	07:34 17:27	07:03 17:52	06:17 18:18		06:33 19:45	06:01 20:18	05:59 20:44
21	06:26 20:46	07:00 20:16	07:28 19:36	07:56 17:51	07:22 17:20	07:39 17:13	07:33 17:28	07:01 17:53	06:16 18:19		06:31 19:46	06:01 20:19	05:59 20:45
22	06:27 20:45	07:01 20:15	07:29 19:35	07:57 17:50	07:23 17:19	07:39 17:13	07:32 17:29	07:00 17:54	06:14 18:20		06:30 19:47	06:00 20:20	06:00 20:46
23	06:28 20:44	07:03 20:14	07:30 19:33	07:58 17:48	07:24 17:19	07:40 17:13	07:32 17:29	06:59 17:55	06:13 18:21		06:29 19:48	06:00 20:21	06:00 20:46
24	06:29 20:44	07:04 20:12	07:31 19:32	07:59 17:47	07:24 17:18	07:40 17:13	07:31 17:30	07:17 17:56	06:11 18:21		06:28 19:49	05:59 20:22	06:01 20:46
25	06:30 20:43	07:05 20:11	07:32 19:30	08:00 17:46	07:25 17:18	07:40 17:14	07:30 17:31	07:15 17:56	06:10 18:22		06:26 19:50	05:59 20:23	06:01 20:47
26	06:31 20:43	07:06 20:10	07:33 19:29	08:00 17:45	07:26 17:17	07:40 17:14	07:29 17:32	07:14 17:57	06:08 18:23		06:25 19:51	05:58 20:24	06:02 20:47
27	06:33 20:42	07:07 20:08	07:33 19:27	08:01 17:43	07:27 17:17	07:40 17:14	07:29 17:32	07:12 17:58	06:06 18:24		06:24 19:52	05:58 20:25	06:03 20:48
28	06:34 20:41	07:08 20:07	07:34 19:26	08:02 17:42	07:27 17:16	07:40 17:15	07:28 17:33	06:52 17:59	06:05 18:25		06:23 19:53	05:58 20:26	06:03 20:48
29	06:35 20:40		07:35 19:24	08:03 17:41	07:28 17:16	07:40 17:15	07:27 17:34	06:50 18:00	06:03 18:26		06:21 19:54	05:57 20:27	06:04 20:48
30	06:36 20:40		07:36 19:23	08:04 17:40	07:29 17:15	07:40 17:15	07:26 17:35	07:08 18:01	06:02 18:27		06:20 19:55	05:57 20:28	06:05 20:49
31	06:37 20:39		07:37 19:21		07:29 17:15		07:25 17:36	06:48 18:01			06:19 19:56		06:05 20:49
Potential sun hours	447	378	383	334	314	288	305	332	355	19	404	424	456
Sum of minutes with flicker	0	0	0	130	0	0	0	111	19	0	0	0	0

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

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

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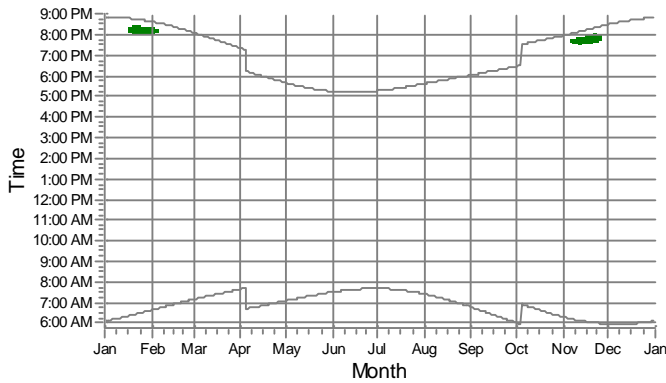
Adam Gray / gray@w-wind.com.au

Calculated:

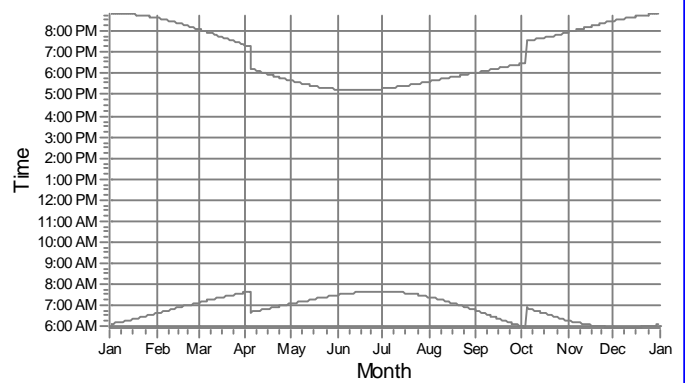
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG, graphical

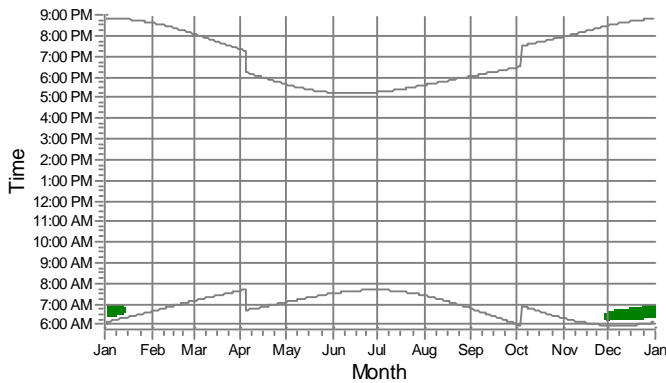
1: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (573)



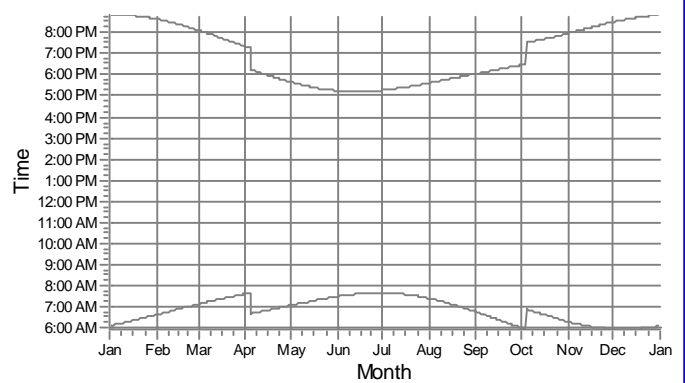
2: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (574)



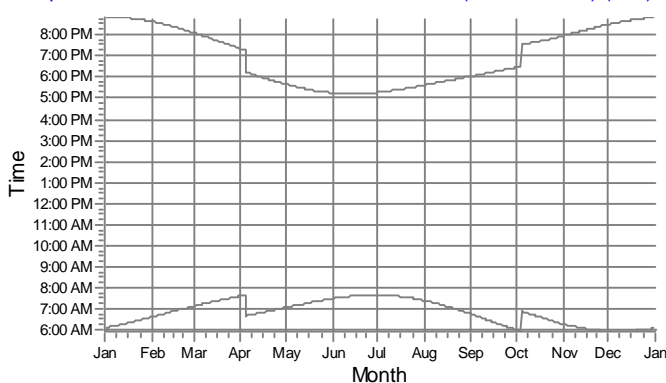
3: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (575)



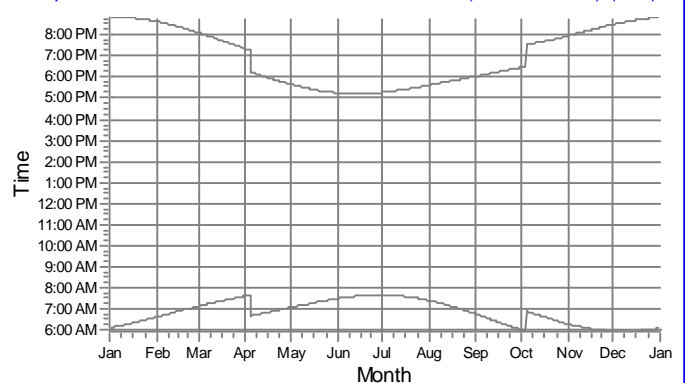
4: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (576)



5: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (577)



6: REpower 3.2M114 3200 114.0 IO! hub: 103.0 m (TOT: 160.0 m) (578)



Shadow receptors



A: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (1)

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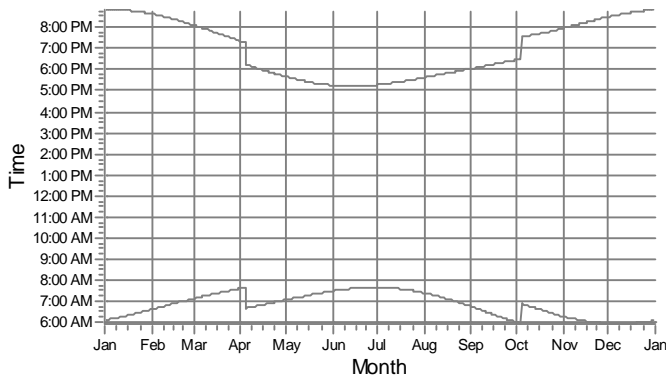
Adam Gray / gray@w-wind.com.au

Calculated:

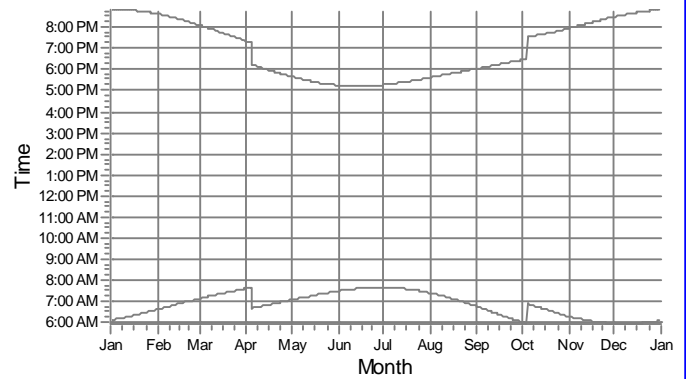
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG, graphical

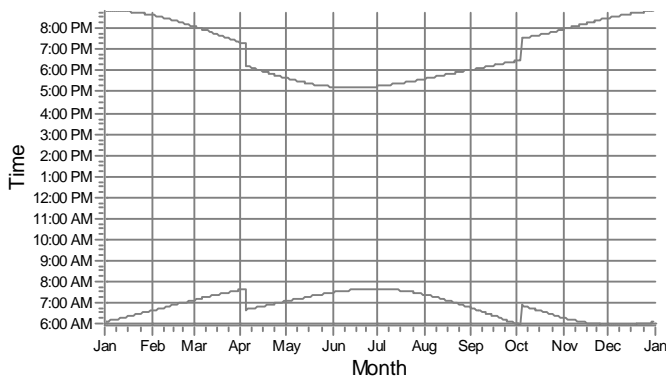
7: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (579)



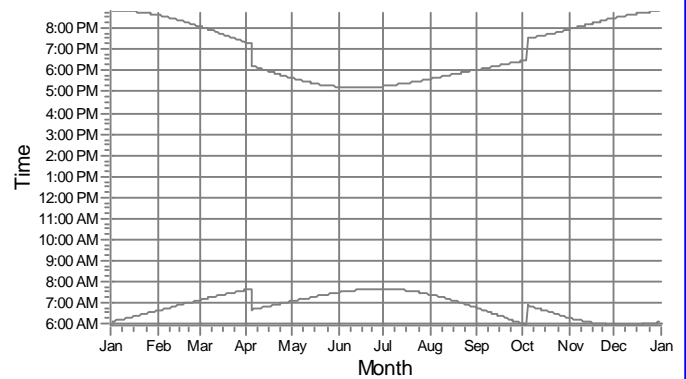
8: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (580)



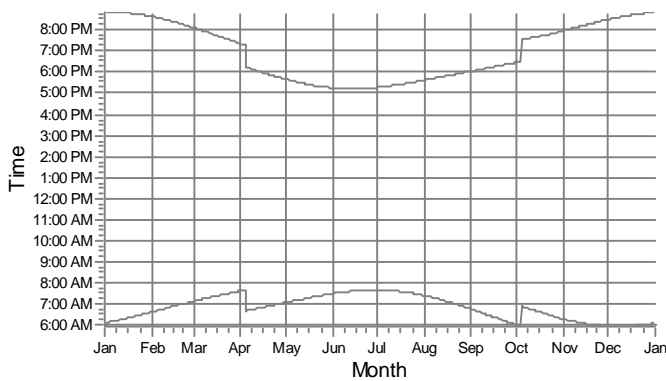
9: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (581)



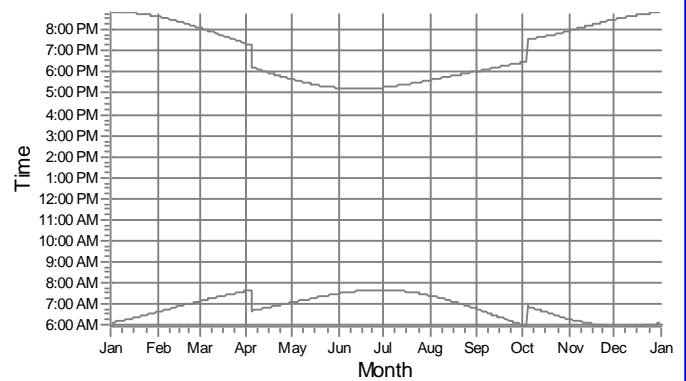
10: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (582)



11: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (583)



12: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (584)



Shadow receptors

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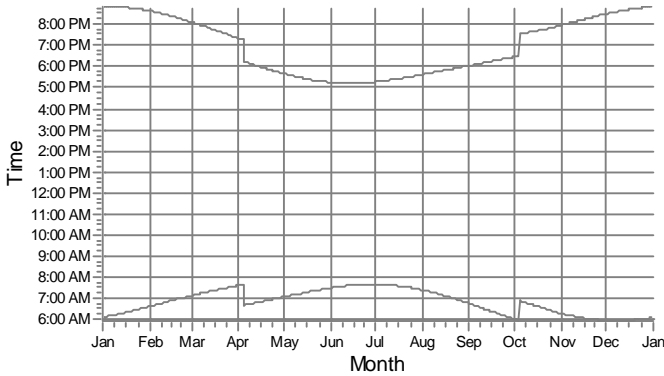
Adam Gray / gray@w-wind.com.au

Calculated:

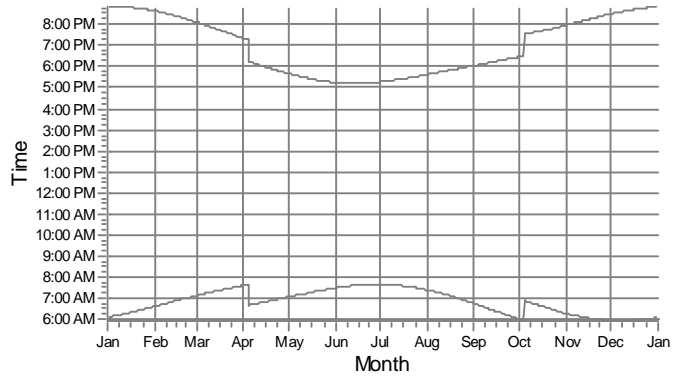
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG, graphical

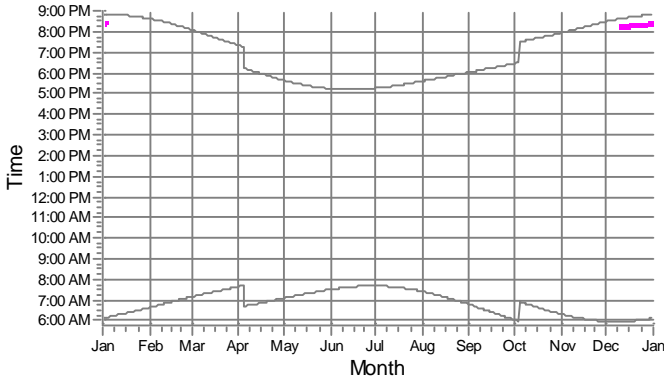
13: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (585)



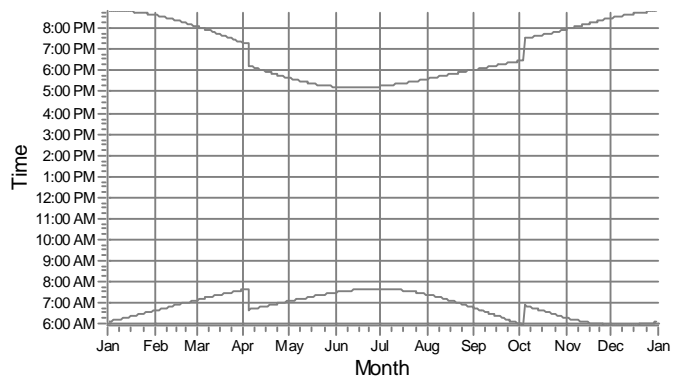
14: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (586)



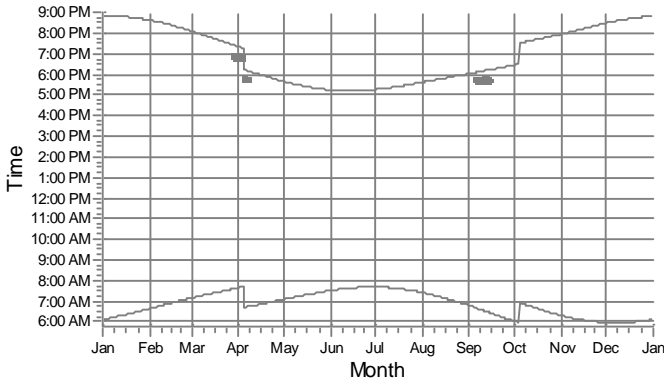
15: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (587)



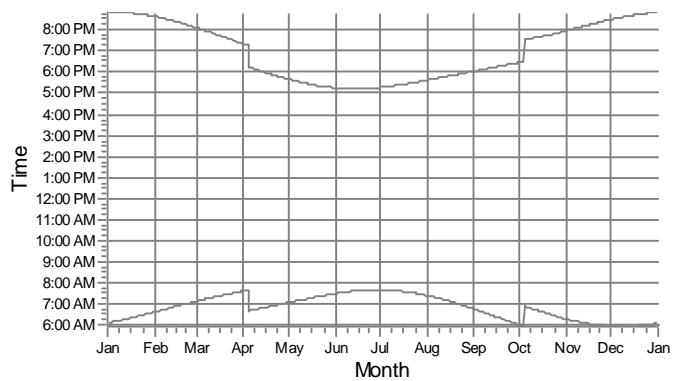
16: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (588)



17: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (589)



18: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (590)



Shadow receptors

- D: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (4)
- E: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (5)

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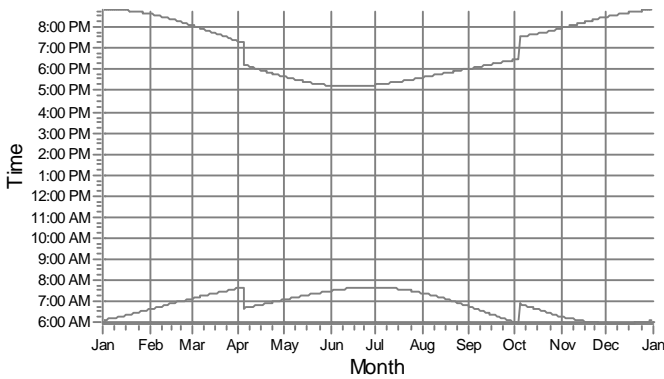
Adam Gray / gray@w-wind.com.au

Calculated:

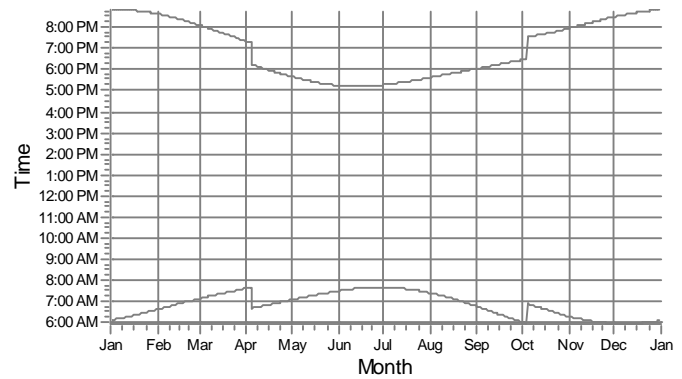
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG, graphical

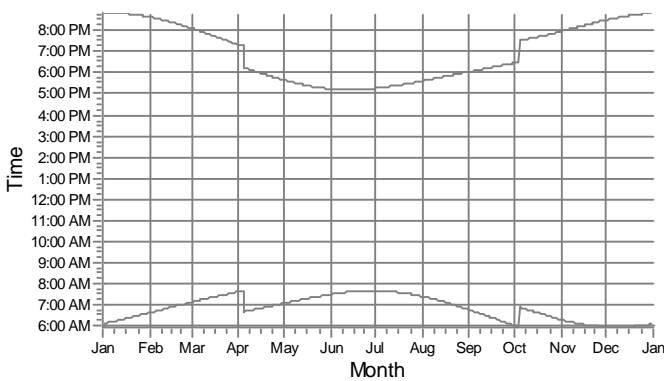
19: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (591)



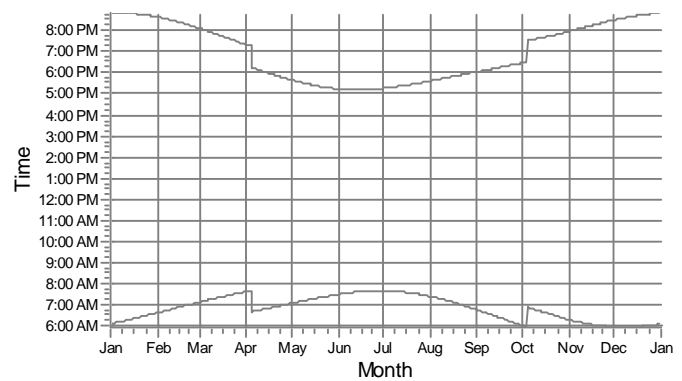
20: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (592)



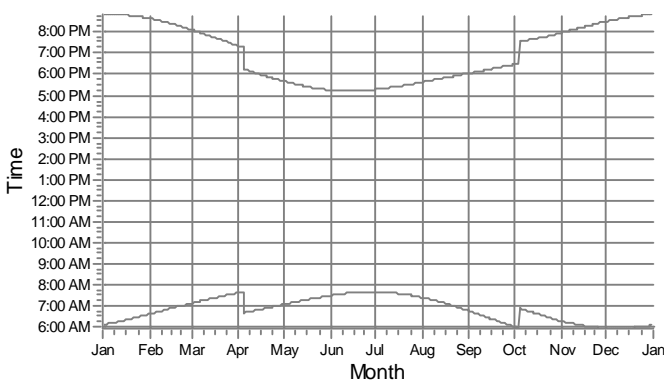
21: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (593)



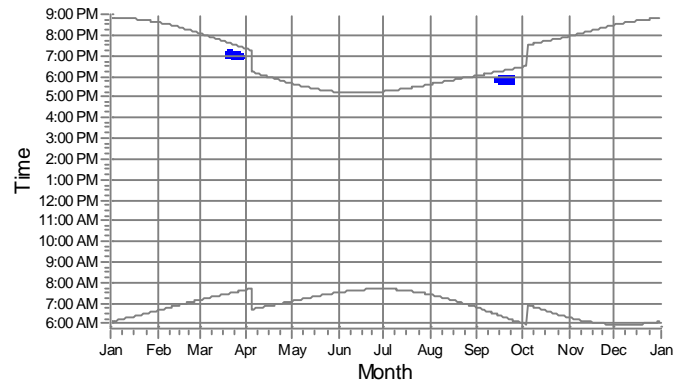
22: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (594)



23: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (595)



24: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (596)



Shadow receptors



C: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (3)

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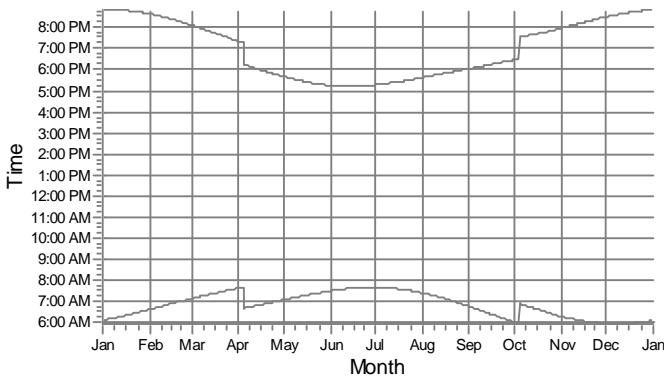
Adam Gray / gray@w-wind.com.au

Calculated:

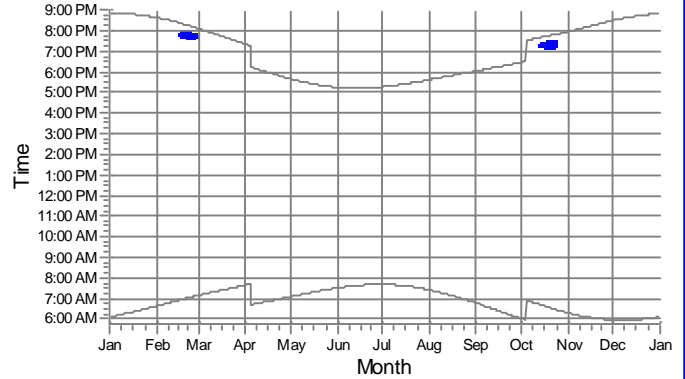
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG, graphical

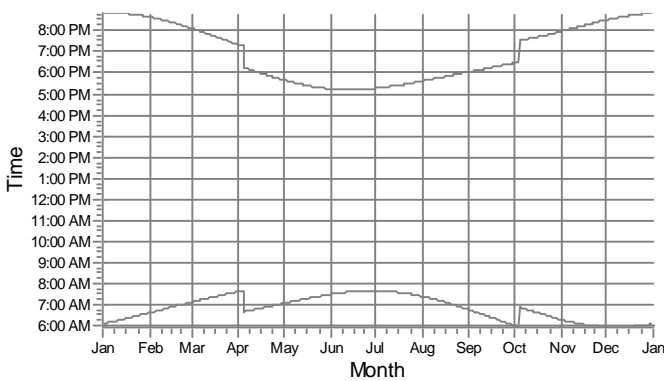
25: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (597)



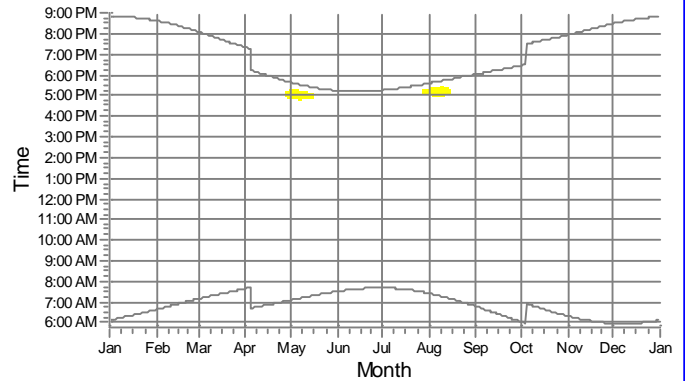
26: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (598)



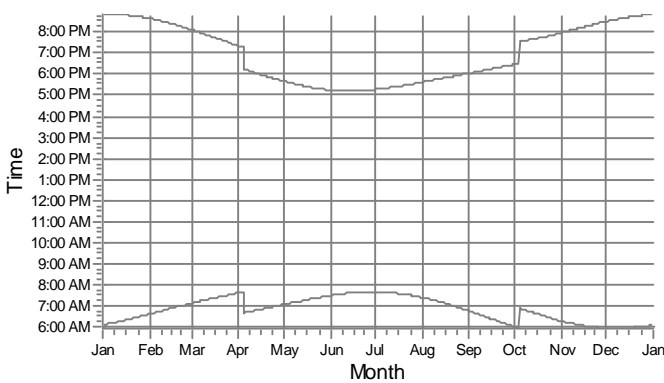
27: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (599)



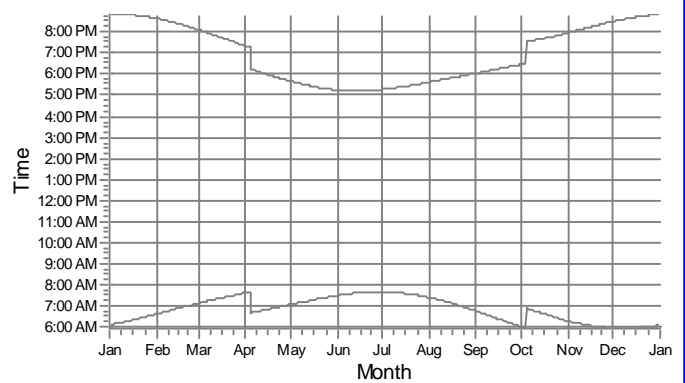
28: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (600)



29: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (601)



30: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (602)



Shadow receptors

- B: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (2)
- C: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (3)

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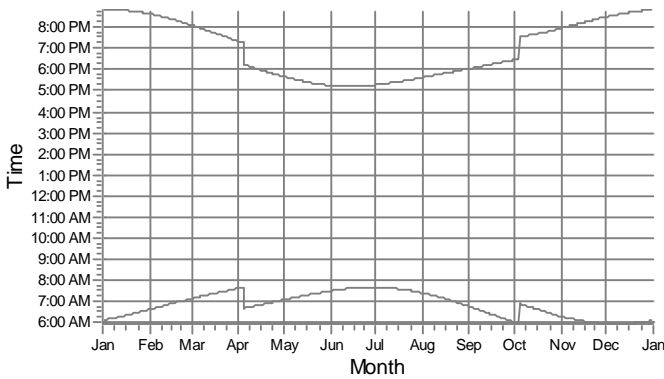
Adam Gray / gray@w-wind.com.au

Calculated:

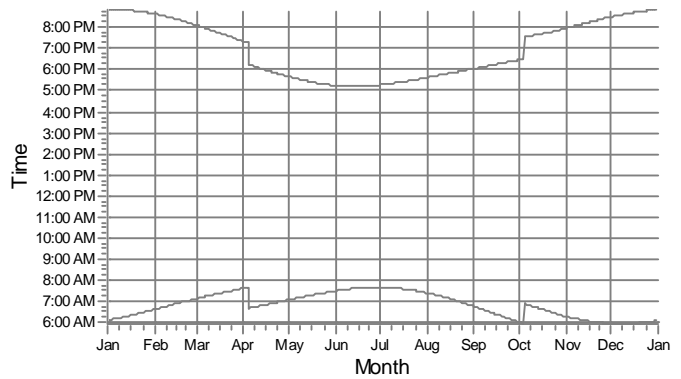
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG, graphical

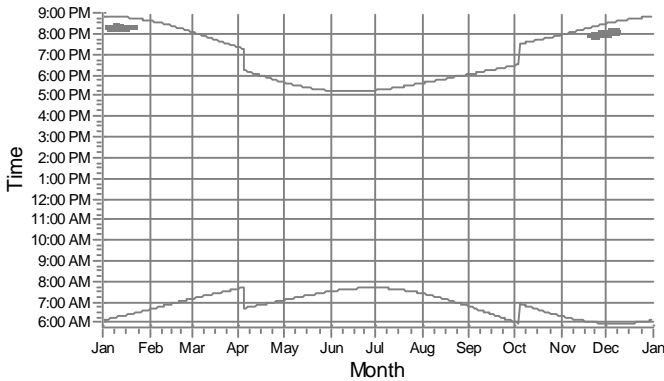
31: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (603)



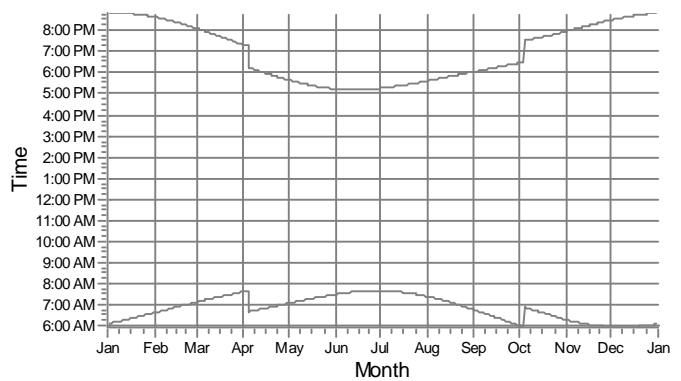
32: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (604)



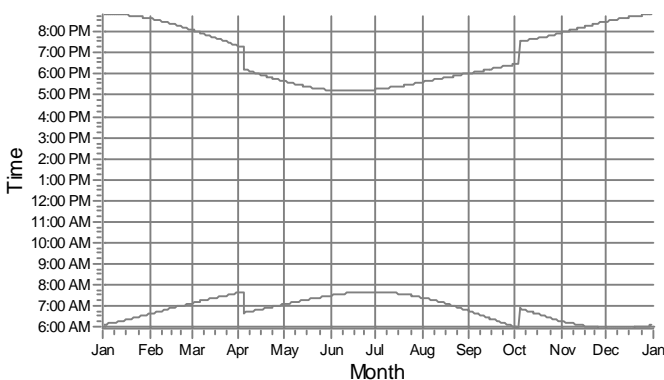
33: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (605)



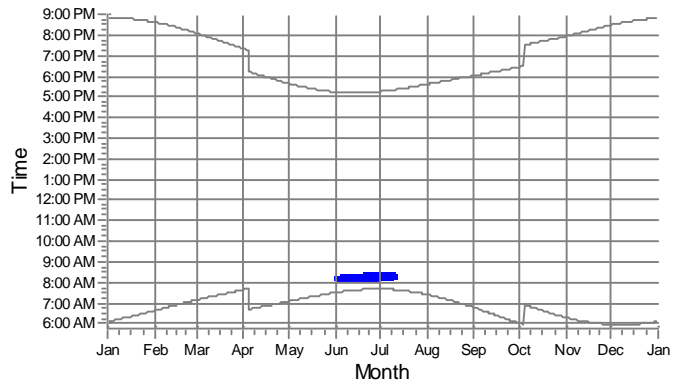
34: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (606)



35: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (607)



36: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (608)



Shadow receptors

- C: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (3)
- D: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (4)

Project:

Yendon Wind Farm

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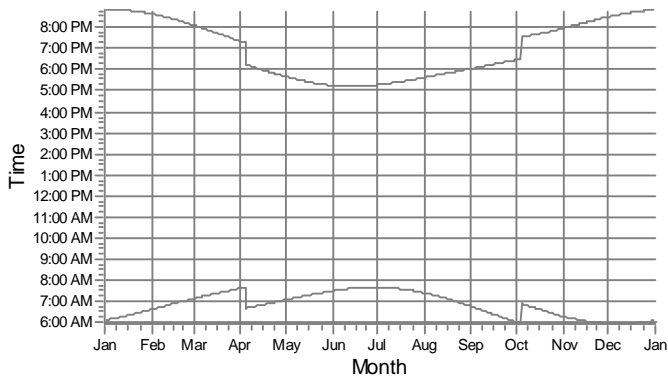
Adam Gray / gray@w-wind.com.au

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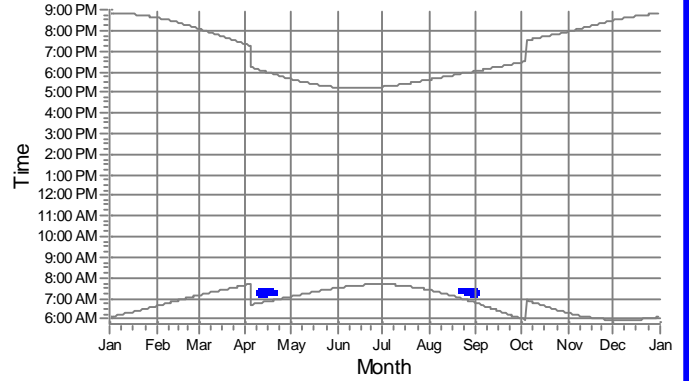
11/02/2015 9:44 PM/2.9.285

SHADOW - Calendar per WTG, graphical

37: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (609)



38: REpower 3.2M114 3200 114.0 !O! hub: 103.0 m (TOT: 160.0 m) (610)



Shadow receptors



C: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (3)

Project:

Yendon Wind Farm

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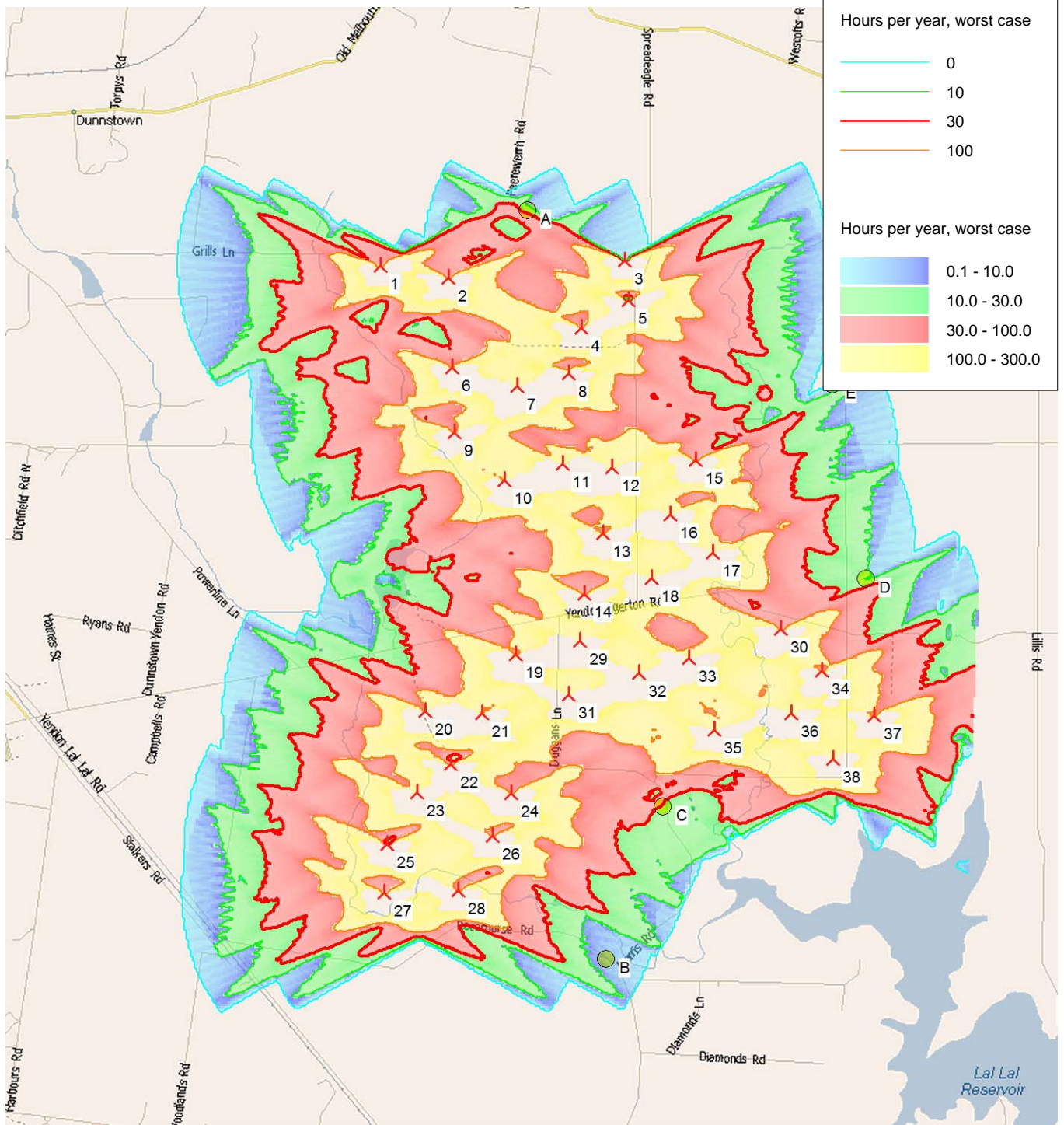
+61 3 5421 9999

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Calculated:

11/02/2015 9:44 PM/2.9.285

SHADOW - Map



0 500 1000 1500 2000 m

Map: WindPRO map , Print scale 1:50,000, Map center UTM GDA94 Zone: 55 East: 236,960 North: 5,831,420

⚡ New WTG

📍 Shadow receptor

Flicker map level: Height Contours: CONTOURLINE_ONLINEDATA_1.wpo (2)