

SHADOW - Kalender

Berechnung: ZB Wohlbedacht Schattenrezeptor: A - IP01
Annahmen für Schattenwurfberechnung

Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:
Die Sonne scheint täglich von Sonnenauf- bis -untergang
Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung
Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni		
1	08:31	14:16 (5)	08:05	14:37 (5)	07:13	05:59	05:14	
	16:26	68 15:24 (2)	17:13	52 16:32 (4)	18:04	19:57	21:32	
2	08:31	14:16 (5)	08:04	14:40 (5)	07:10	07:01	05:14	
	16:27	68 15:24 (2)	17:15	49 16:33 (4)	18:06	19:59	20:49	
3	08:31	14:17 (5)	08:02	14:44 (5)	07:08	06:58	05:13	
	16:28	68 15:25 (2)	17:17	42 16:34 (4)	18:08	20:00	20:50	
4	08:31	14:17 (5)	08:00	16:03 (4)	07:06	06:56	05:12	
	16:29	67 15:24 (2)	17:19	31 16:34 (4)	18:09	20:02	20:52	
5	08:31	14:17 (5)	07:59	16:03 (4)	07:04	06:54	05:11	
	16:31	68 15:25 (2)	17:21	32 16:35 (4)	18:11	20:04	20:54	
6	08:30	14:17 (5)	07:57	16:02 (4)	07:02	06:52	05:11	
	16:32	68 15:25 (2)	17:22	33 16:35 (4)	18:13	20:06	20:55	
7	08:30	14:18 (5)	07:55	16:03 (4)	06:59	06:49	05:10	
	16:33	67 15:25 (2)	17:24	33 16:36 (4)	18:15	20:07	20:57	
8	08:29	14:18 (5)	07:54	16:03 (4)	06:57	06:47	05:10	
	16:34	67 15:25 (2)	17:26	33 16:36 (4)	18:16	20:09	20:59	
9	08:29	14:19 (5)	07:52	16:03 (4)	06:55	06:45	05:09	
	16:36	65 15:25 (2)	17:28	32 16:35 (4)	18:18	20:11	21:00	
10	08:28	14:19 (5)	07:50	16:03 (4)	06:53	06:43	05:09	
	16:37	66 15:25 (2)	17:30	32 16:35 (4)	18:20	20:12	21:02	
11	08:28	14:19 (5)	07:48	16:04 (4)	06:51	06:40	05:08	
	16:38	64 15:24 (2)	17:32	31 16:35 (4)	18:22	20:14	21:03	
12	08:27	14:19 (5)	07:47	16:04 (4)	06:48	06:38	05:08	
	16:40	62 15:23 (2)	17:33	30 16:34 (4)	18:23	20:16	21:05	
13	08:27	14:21 (5)	07:45	16:05 (4)	06:46	06:36	05:08	
	16:41	58 15:23 (2)	17:35	28 16:33 (4)	18:25	20:17	21:06	
14	08:26	14:21 (5)	07:43	16:06 (4)	06:44	06:34	05:08	
	16:43	55 15:22 (2)	17:37	27 16:33 (4)	18:27	20:19	21:08	
15	08:25	14:21 (5)	07:41	16:07 (4)	06:42	06:32	05:07	
	16:44	50 15:19 (2)	17:39	25 16:32 (4)	18:28	20:21	21:09	
16	08:24	14:22 (5)	07:39	16:08 (4)	06:39	06:29	05:07	
	16:46	46 15:08 (5)	17:41	22 16:30 (4)	18:30	20:22	21:11	
17	08:23	14:22 (5)	07:37	16:10 (4)	06:37	06:27	05:07	
	16:47	46 15:08 (5)	17:43	19 16:29 (4)	18:32	20:24	21:12	
18	08:22	14:23 (5)	07:35	16:13 (4)	06:35	06:25	05:07	
	16:49	45 15:08 (5)	17:44	13 16:26 (4)	18:34	20:26	21:14	
19	08:22	14:23 (5)	07:33	16:19 (4)	06:32	06:23	05:07	
	16:51	45 15:08 (5)	17:46	1 16:20 (4)	18:35	20:27	21:15	
20	08:21	14:23 (5)	07:31		06:30	06:21	05:07	
	16:52	45 15:08 (5)	17:48		18:37	20:29	21:17	
21	08:19	14:24 (5)	07:29		06:28	06:19	05:08	
	16:54	44 15:08 (5)	17:50		18:39	20:31	21:18	
22	08:18	14:25 (5)	07:27		06:26	06:17	05:08	
	16:56	43 15:08 (5)	17:52		18:40	20:32	21:20	
23	08:17	14:25 (5)	07:25		06:23	06:15	05:08	
	16:57	43 15:08 (5)	17:53		18:42	20:34	21:21	
24	08:16	14:26 (5)	07:23		06:21	06:13	05:08	
	16:59	42 15:08 (5)	17:55		18:44	20:36	21:22	
25	08:15	14:28 (5)	07:21		06:19	06:11	05:09	
	17:01	48 16:21 (4)	17:57		18:45	20:37	21:24	
26	08:13	14:28 (5)	07:19		06:16	06:09	05:20	
	17:03	53 16:24 (4)	17:59		18:47	20:39	21:25	
27	08:12	14:30 (5)	07:17		06:14	06:07	05:19	
	17:04	54 16:26 (4)	18:01		18:49	20:41	21:26	
28	08:11	14:30 (5)	07:15		06:12	06:05	05:18	
	17:06	56 16:27 (4)	18:02		18:50	20:42	21:27	
29	08:09	14:32 (5)			07:10	06:03	05:17	
	17:08	56 16:29 (4)			19:52	20:44	21:29	
30	08:08	14:33 (5)			07:07	06:01	05:16	
	17:10	56 16:30 (4)			19:54	20:46	21:30	
31	08:07	14:36 (5)			07:05		05:15	
	17:11	54 16:32 (4)			19:55		21:31	
Sonnenscheinstunden	261		278		367	415	483	497
astr.max.mögl.Beschattung	1737		565					

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Tag im Monat	Sonnenaufgang (SS:MM)	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM) Schattenanfang	Zeitpunkt (SS:MM) Schattende	(WEA mit erstem Schatten)	(WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Wohlbedacht Schattenrezeptor: A - IP01
Annahmen für Schattenwurfberechnung

Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:

- Die Sonne scheint täglich von Sonnenauf- bis -untergang
- Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung
- Die Windenergieanlage/n ist/sind immer in Betrieb

	July	August	September	Oktober	November	Dezember
1	05:12	05:47	06:36	07:24	07:17	15:33 (4) 08:07 14:01 (5)
	21:46	21:15	20:14	19:05	17:00 32	16:05 (4) 16:20 64 15:06 (2)
2	05:12	05:49	06:38	07:26	07:19	15:33 (4) 08:09 14:02 (5)
	21:46	21:13	20:11	19:03	16:58 32	16:05 (4) 16:20 66 15:08 (2)
3	05:13	05:50	06:39	07:28	07:21	15:33 (4) 08:10 14:02 (5)
	21:45	21:12	20:09	19:01	16:56 32	16:05 (4) 16:19 65 15:08 (2)
4	05:14	05:52	06:41	07:29	07:23	15:32 (4) 08:12 14:03 (5)
	21:45	21:10	20:07	18:58	16:55 32	16:04 (4) 16:19 67 15:10 (2)
5	05:15	05:54	06:43	07:31	07:24	15:32 (4) 08:13 14:03 (5)
	21:44	21:08	20:05	18:56	16:53 32	16:04 (4) 16:18 67 15:10 (2)
6	05:15	05:55	06:44	07:33	07:26	15:32 (4) 08:14 14:03 (5)
	21:44	21:06	20:02	18:54	16:51 32	16:04 (4) 16:18 68 15:11 (2)
7	05:16	05:57	06:46	07:34	07:28	15:33 (4) 08:15 14:04 (5)
	21:43	21:05	20:00	18:52	16:49 31	16:04 (4) 16:17 68 15:12 (2)
8	05:17	05:58	06:47	07:36	07:30	14:14 (5) 08:17 14:05 (5)
	21:43	21:03	19:58	18:49	16:48 43	16:04 (4) 16:17 67 15:12 (2)
9	05:18	06:00	06:49	07:38	07:31	14:10 (5) 08:18 14:05 (5)
	21:42	21:01	19:56	18:47	16:46 50	16:04 (4) 16:17 68 15:13 (2)
10	05:19	06:01	06:51	07:39	07:33	14:08 (5) 08:19 14:05 (5)
	21:41	20:59	19:53	18:45	16:45 52	16:03 (4) 16:16 68 15:13 (2)
11	05:20	06:03	06:52	07:41	07:35	14:06 (5) 08:20 14:06 (5)
	21:41	20:57	19:51	18:43	16:43 55	16:03 (4) 16:16 68 15:14 (2)
12	05:21	06:04	06:54	07:43	07:37	14:05 (5) 08:21 14:05 (3)
	21:40	20:55	19:49	18:40	16:41 56	16:02 (4) 16:16 69 15:14 (2)
13	05:22	06:06	06:55	07:44	07:38	14:04 (5) 08:22 14:05 (3)
	21:39	20:53	19:47	18:38	16:40 56	16:01 (4) 16:16 70 15:15 (2)
14	05:23	06:08	06:57	07:46	07:40	14:03 (5) 08:23 14:05 (3)
	21:38	20:52	19:44	18:36	16:39 56	16:00 (4) 16:16 71 15:16 (2)
15	05:24	06:09	06:59	07:48	07:42	14:02 (5) 08:24 14:05 (3)
	21:37	20:50	19:42	18:34	16:37 54	15:58 (4) 16:16 71 15:16 (2)
16	05:26	06:11	07:00	07:49	07:44	14:01 (5) 08:25 14:06 (3)
	21:36	20:48	19:40	18:32	16:36 52	15:56 (4) 16:16 71 15:17 (2)
17	05:27	06:12	07:02	07:51	07:45	14:01 (5) 08:25 14:06 (3)
	21:35	20:46	19:37	18:30	16:34 48	15:54 (4) 16:16 72 15:18 (2)
18	05:28	06:14	07:03	07:53	07:47	14:00 (5) 08:26 14:06 (3)
	21:34	20:44	19:35	18:28	16:33 42	14:42 (5) 16:17 71 15:17 (2)
19	05:29	06:16	07:05	07:55	07:49	14:00 (5) 08:27 14:06 (3)
	21:33	20:42	19:33	18:25	16:32 43	14:43 (5) 16:17 72 15:18 (2)
20	05:31	06:17	07:07	07:56	07:50	14:00 (5) 08:28 14:07 (3)
	21:32	20:39	19:30	18:23	16:31 43	14:43 (5) 16:17 72 15:19 (2)
21	05:32	06:19	07:08	07:58	07:52	13:59 (5) 08:28 14:07 (3)
	21:31	20:37	19:28	18:21	16:29 44	14:43 (5) 16:18 72 15:19 (2)
22	05:33	06:20	07:10	08:00	07:54	13:59 (5) 08:29 14:08 (3)
	21:29	20:35	19:26	18:19	16:28 45	14:44 (5) 16:18 72 15:20 (2)
23	05:35	06:22	07:11	08:01	07:55	14:00 (5) 08:29 14:08 (3)
	21:28	20:33	19:23	18:17	16:46 (4) 7	16:53 (4) 16:27 45 14:45 (5) 16:19 72 15:20 (2)
24	05:36	06:23	07:13	08:03	07:57	16:42 (4) 14:00 (5) 08:30 14:09 (3)
	21:27	20:31	19:21	18:15	16:57 (4) 15	16:57 (4) 16:26 45 14:45 (5) 16:19 72 15:21 (2)
25	05:37	06:25	07:15	07:05	07:58	15:40 (4) 13:59 (5) 08:30 14:09 (3)
	21:25	20:29	19:19	17:13	16:25 46	14:45 (5) 16:20 72 15:21 (2)
26	05:39	06:27	07:16	07:07	08:00	15:37 (4) 14:00 (5) 08:30 14:10 (3)
	21:24	20:27	19:17	17:11	23 16:00 (4) 16:24 46	14:46 (5) 16:21 71 15:21 (2)
27	05:40	06:28	07:18	07:08	08:02	15:36 (4) 14:00 (5) 08:31 14:10 (3)
	21:22	20:25	19:14	17:09	25 16:01 (4) 16:23 49	14:58 (2) 16:21 72 15:22 (2)
28	05:42	06:30	07:19	07:10	08:03	15:35 (4) 14:00 (5) 08:31 14:11 (3)
	21:21	20:22	19:12	17:07	27 16:02 (4) 16:23 55	15:01 (2) 16:22 71 15:22 (2)
29	05:43	06:31	07:21	07:12	08:05	15:34 (4) 14:01 (5) 08:31 14:12 (3)
	21:20	20:20	19:10	17:05	29 16:03 (4) 16:22 58	15:03 (2) 16:23 70 15:22 (2)
30	05:44	06:33	07:23	07:14	08:06	15:34 (4) 14:01 (5) 08:31 14:13 (3)
	21:18	20:18	19:07	17:04	30 16:04 (4) 16:21 62	15:05 (2) 16:24 70 15:23 (2)
31	05:46	06:35	07:25	07:15	15:33 (4)	08:31 14:14 (3)
	21:16	20:16	17:02	31 16:04 (4)	268	16:25 69 15:23 (2)
Sonnenscheinstunden		500	453	381	332	246
astr.max.mögl.Beschattung				206	1368	2158

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Tag im Monat	Sonnenaufgang (SS:MM)	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM) Schattenanfang	Zeitpunkt (SS:MM) Schattenende	(WEA mit erstem Schatten)	(WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Wohlbedacht Schattenrezeptor: B - IP02
Annahmen für Schattenwurfberechnung

Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:
Die Sonne scheint täglich von Sonnenauf- bis -untergang
Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung
Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni				
1	08:31	14:00 (5)	08:05	15:52 (4)	07:13	07:03	05:59	05:14		
	16:26	65	15:12 (2)	17:13	32	16:24 (4)	18:04	19:57	20:47	21:32
2	08:31	14:01 (5)	08:04	15:51 (4)	07:10	07:01	05:57	05:14		
	16:27	65	15:13 (2)	17:15	33	16:24 (4)	18:06	19:59	20:49	21:33
3	08:31	14:02 (5)	08:02	15:52 (4)	07:08	06:58	05:55	05:13		
	16:28	64	15:13 (2)	17:17	33	16:25 (4)	18:08	20:00	20:50	21:34
4	08:31	14:02 (5)	08:00	15:52 (4)	07:06	06:56	05:53	05:12		
	16:29	62	15:12 (2)	17:19	33	16:25 (4)	18:09	20:02	20:52	21:35
5	08:31	14:02 (5)	07:59	15:52 (4)	07:04	06:54	05:51	05:11		
	16:31	61	15:12 (2)	17:21	32	16:24 (4)	18:11	20:04	20:54	21:36
6	08:30	14:02 (5)	07:57	15:52 (4)	07:02	06:52	05:50	05:11		
	16:32	60	15:12 (2)	17:22	32	16:24 (4)	18:13	20:06	20:55	21:37
7	08:30	14:03 (5)	07:55	15:54 (4)	06:59	06:49	05:48	05:10		
	16:33	58	15:12 (2)	17:24	31	16:25 (4)	18:15	20:07	20:57	21:38
8	08:29	14:04 (5)	07:54	15:54 (4)	06:57	06:47	05:46	05:10		
	16:34	54	15:10 (2)	17:26	30	16:24 (4)	18:16	20:09	20:59	21:39
9	08:29	14:05 (5)	07:52	15:55 (4)	06:55	06:45	05:44	05:09		
	16:36	49	15:09 (2)	17:28	28	16:23 (4)	18:18	20:11	21:00	21:40
10	08:28	14:05 (5)	07:50	15:56 (4)	06:53	06:43	05:43	05:09		
	16:37	45	14:50 (5)	17:30	26	16:22 (4)	18:20	20:12	21:02	21:41
11	08:28	14:05 (5)	07:48	15:57 (4)	06:51	06:40	05:41	05:08		
	16:38	45	14:50 (5)	17:32	24	16:21 (4)	18:22	20:14	21:03	21:41
12	08:27	14:06 (5)	07:47	15:58 (4)	06:48	06:38	05:39	05:08		
	16:40	44	14:50 (5)	17:33	22	16:20 (4)	18:23	20:16	21:05	21:42
13	08:27	14:07 (5)	07:45	16:00 (4)	06:46	06:36	05:38	05:08		
	16:41	44	14:51 (5)	17:35	18	16:18 (4)	18:25	20:17	21:06	21:43
14	08:26	14:08 (5)	07:43	16:03 (4)	06:44	06:34	05:36	05:08		
	16:43	43	14:51 (5)	17:37	12	16:15 (4)	18:27	20:19	21:08	21:43
15	08:25	14:08 (5)	07:41		06:42	06:32	05:35	05:07		
	16:44	43	14:51 (5)	17:39		18:28	20:21	21:09	21:44	
16	08:24	14:09 (5)	07:39		06:39	06:29	05:33	05:07		
	16:46	42	14:51 (5)	17:41		18:30	20:22	21:11	21:44	
17	08:23	14:10 (5)	07:37		06:37	06:27	05:32	05:07		
	16:47	41	14:51 (5)	17:43		18:32	20:24	21:12	21:45	
18	08:22	14:11 (5)	07:35		06:35	06:25	05:30	05:07		
	16:49	41	16:05 (4)	17:44		18:34	20:26	21:14	21:45	
19	08:22	14:11 (5)	07:33		06:32	06:23	05:29	05:07		
	16:51	50	16:10 (4)	17:46		18:35	20:27	21:15	21:46	
20	08:21	14:12 (5)	07:31		06:30	06:21	05:28	05:07		
	16:52	53	16:12 (4)	17:48		18:37	20:29	21:17	21:46	
21	08:19	14:13 (5)	07:29		06:28	06:19	05:26	05:08		
	16:54	54	16:14 (4)	17:50		18:39	20:31	21:18	21:46	
22	08:18	14:15 (5)	07:27		06:26	06:17	05:25	05:08		
	16:56	55	16:16 (4)	17:52		18:40	20:32	21:20	21:46	
23	08:17	14:15 (5)	07:25		06:23	06:15	05:24	05:08		
	16:57	56	16:17 (4)	17:53		18:42	20:34	21:21	21:47	
24	08:16	14:17 (5)	07:23		06:21	06:13	05:23	05:08		
	16:59	54	16:18 (4)	17:55		18:44	20:36	21:22	21:47	
25	08:15	14:19 (5)	07:21		06:19	06:11	05:21	05:09		
	17:01	55	16:20 (4)	17:57		18:45	20:37	21:24	21:47	
26	08:13	14:21 (5)	07:19		06:16	06:09	05:20	05:09		
	17:03	52	16:20 (4)	17:59		18:47	20:39	21:25	21:47	
27	08:12	14:23 (5)	07:17		06:14	06:07	05:19	05:09		
	17:04	51	16:22 (4)	18:01		18:49	20:41	21:26	21:47	
28	08:11	14:26 (5)	07:15		06:12	06:05	05:18	05:10		
	17:06	45	16:22 (4)	18:02		18:50	20:42	21:27	21:47	
29	08:09	15:52 (4)			07:10	06:03	05:17	05:10		
	17:08	31	16:23 (4)		19:52	20:44	21:29	21:46		
30	08:08	15:51 (4)			07:07	06:01	05:16	05:11		
	17:10	32	16:23 (4)		19:54	20:46	21:30	21:46		
31	08:07	15:52 (4)			07:05		05:15			
	17:11	32	16:24 (4)		19:55		21:31			
Sonnenscheinstunden	261		278		367	415	483	497		
astr.max.mögl.Beschattung	1546		386							

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Tag im Monat	Sonnenaufgang (SS:MM)	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM) Schattenanfang	Zeitpunkt (SS:MM) Schatteneende	(WEA mit erstem Schatten)	(WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Wohlbedacht Schattenrezeptor: B - IP02
Annahmen für Schattenwurfberechnung

Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:
Die Sonne scheint täglich von Sonnenauf- bis -untergang
Die Rotorfläche steht immer senkrecht zur Sonneneinflussrichtung
Die Windenergieanlage/n ist/sind immer in Betrieb

	July	August	September	Oktober	November	Dezember		
1	05:12	05:47	06:36	07:24	07:17	15:25 (4) 08:07	13:47 (5)	
	21:46	21:15	20:14	19:05	17:00	27 15:52 (4) 16:20	45 14:32 (5)	
2	05:12	05:49	06:38	07:26	07:19	15:24 (4) 08:09	13:48 (5)	
	21:46	21:13	20:11	19:03	16:58	29 15:53 (4) 16:20	45 14:33 (5)	
3	05:13	05:50	06:39	07:28	07:21	15:24 (4) 08:10	13:48 (5)	
	21:45	21:12	20:09	19:01	16:56	30 15:54 (4) 16:19	49 14:52 (2)	
4	05:14	05:52	06:41	07:29	07:23	15:22 (4) 08:12	13:49 (5)	
	21:45	21:10	20:07	18:58	16:55	31 15:53 (4) 16:19	54 14:55 (2)	
5	05:15	05:54	06:43	07:31	07:24	15:22 (4) 08:13	13:48 (5)	
	21:44	21:08	20:05	18:56	16:53	32 15:54 (4) 16:18	58 14:57 (2)	
6	05:15	05:55	06:44	07:33	07:26	15:22 (4) 08:14	13:48 (5)	
	21:44	21:06	20:02	18:54	16:51	32 15:54 (4) 16:18	60 14:58 (2)	
7	05:16	05:57	06:46	07:34	07:28	15:22 (4) 08:15	13:50 (5)	
	21:43	21:05	20:00	18:52	16:49	33 15:55 (4) 16:17	60 14:59 (2)	
8	05:17	05:58	06:47	07:36	07:30	15:22 (4) 08:17	13:50 (5)	
	21:43	21:03	19:58	18:49	16:48	33 15:55 (4) 16:17	62 15:00 (2)	
9	05:18	06:00	06:49	07:38	07:31	15:22 (4) 08:18	13:50 (5)	
	21:42	21:01	19:56	18:47	16:46	33 15:55 (4) 16:17	63 15:01 (2)	
10	05:19	06:01	06:51	07:39	07:33	15:22 (4) 08:19	13:50 (5)	
	21:41	20:59	19:53	18:45	16:45	33 15:55 (4) 16:16	65 15:02 (2)	
11	05:20	06:03	06:52	07:41	07:35	15:23 (4) 08:20	13:50 (5)	
	21:41	20:57	19:51	18:43	16:43	32 15:55 (4) 16:16	65 15:02 (2)	
12	05:21	06:04	06:54	07:43	07:37	15:23 (4) 08:21	13:51 (5)	
	21:40	20:55	19:49	18:40	16:41	32 15:55 (4) 16:16	66 15:03 (2)	
13	05:22	06:06	06:55	07:44	07:38	14:04 (5) 08:22	13:51 (5)	
	21:39	20:53	19:47	18:38	16:40	35 15:55 (4) 16:16	67 15:04 (2)	
14	05:23	06:08	06:57	07:46	07:40	13:59 (5) 08:23	13:52 (5)	
	21:38	20:52	19:44	18:36	16:39	45 15:55 (4) 16:16	67 15:05 (2)	
15	05:24	06:09	06:59	07:48	07:42	13:55 (5) 08:24	13:52 (5)	
	21:37	20:50	19:42	18:34	16:37	51 15:54 (4) 16:16	67 15:05 (2)	
16	05:26	06:11	07:00	07:49	07:44	13:54 (5) 08:25	13:53 (5)	
	21:36	20:48	19:40	18:32	16:36	52 15:53 (4) 16:16	67 15:06 (2)	
17	05:27	06:12	07:02	07:51	07:45	13:52 (5) 08:25	13:53 (5)	
	21:35	20:46	19:37	18:30	16:34	55 15:53 (4) 16:16	69 15:07 (2)	
18	05:28	06:14	07:03	07:53	07:47	13:51 (5) 08:26	13:53 (5)	
	21:34	20:44	19:35	18:28	16:33	54 15:52 (4) 16:17	68 15:07 (2)	
19	05:29	06:16	07:05	07:55	07:49	13:50 (5) 08:27	13:54 (5)	
	21:33	20:42	19:33	18:25	16:32	56 15:52 (4) 16:17	69 15:08 (2)	
20	05:31	06:17	07:07	07:56	07:50	13:50 (5) 08:28	13:55 (5)	
	21:32	20:39	19:30	18:23	16:31	55 15:51 (4) 16:17	69 15:09 (2)	
21	05:32	06:19	07:08	07:58	07:52	13:48 (5) 08:28	13:55 (5)	
	21:31	20:37	19:28	18:21	16:29	54 15:49 (4) 16:18	68 15:08 (2)	
22	05:33	06:20	07:10	08:00	07:54	13:48 (5) 08:29	13:56 (5)	
	21:29	20:35	19:26	18:19	16:28	53 15:48 (4) 16:18	68 15:09 (2)	
23	05:35	06:22	07:11	08:01	07:55	13:48 (5) 08:29	13:56 (5)	
	21:28	20:33	19:23	18:17	16:27	50 15:47 (4) 16:19	69 15:10 (2)	
24	05:36	06:23	07:13	08:03	07:57	13:48 (5) 08:30	13:57 (5)	
	21:27	20:31	19:21	18:15	16:26	42 15:43 (4) 16:19	69 15:11 (2)	
25	05:37	06:25	07:15	07:05	07:58	13:47 (5) 08:30	13:57 (5)	
	21:25	20:29	19:19	17:13	16:25	41 14:28 (5) 16:20	68 15:11 (2)	
26	05:39	06:27	07:16	07:07	08:00	13:47 (5) 08:30	13:57 (5)	
	21:24	20:27	19:17	17:11	16:24	42 14:29 (5) 16:21	69 15:11 (2)	
27	05:40	06:28	07:18	07:08	15:36 (4) 08:02	13:47 (5) 08:31	13:58 (5)	
	21:22	20:25	19:14	17:09	5 15:41 (4) 16:23	43 14:30 (5) 16:21	68 15:11 (2)	
28	05:42	06:30	07:19	07:10	15:32 (4) 08:03	13:47 (5) 08:31	13:58 (5)	
	21:21	20:22	19:12	17:07	14 15:46 (4) 16:23	43 14:30 (5) 16:22	67 15:11 (2)	
29	05:43	06:31	07:21	07:12	15:29 (4) 08:05	13:47 (5) 08:31	13:58 (5)	
	21:20	20:20	19:10	17:05	19 15:48 (4) 16:22	44 14:31 (5) 16:23	68 15:11 (2)	
30	05:44	06:33	07:23	07:14	15:27 (4) 08:06	13:48 (5) 08:31	13:59 (5)	
	21:18	20:18	19:07	17:04	23 15:50 (4) 16:21	44 14:32 (5) 16:24	67 15:12 (2)	
31	05:46	06:35		07:15	15:26 (4)		08:31	13:59 (5)
	21:16	20:16		17:02	25 15:51 (4)		16:25	67 15:12 (2)
Sonnenscheinstunden	500	453	381	332	268	246	1983	
astr.max.mögl.Beschattung				86	1236			

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Tag im Monat	Sonnenaufgang (SS:MM)	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM)	Schattenanfang (WEA mit erstem Schatten)	Schattenende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Wohlbedacht Schattenrezeptor: F - IP06
Annahmen für Schattenwurfberechnung

- Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:
Die Sonne scheint täglich von Sonnenauf- bis -untergang
Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung
Die Windenergieanlage/n ist/sind immer in Betrieb

Table with columns for months (Januar to Dezember) and rows for days (1-31). Includes solar hours (Sonnenscheinstunden) and maximum possible shading (astr.max.mögl.Beschattung) at the bottom.

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Table with 4 columns: Tag im Monat, Sonnenaufgang (SS:MM), Sonnenuntergang (SS:MM), Minuten mit Schatten, Zeitpunkt (SS:MM) Schattenanfang, Zeitpunkt (SS:MM) Schattende, (WEA mit erstem Schatten), (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Wohlbedacht Schattenrezeptor: N - IP14
Annahmen für Schattenwurfberechnung

- Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:
- Die Sonne scheint täglich von Sonnenauf- bis -untergang
- Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung
- Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:31 16:26	08:05 17:13	07:13 18:04	07:03 19:57	05:59 20:47	05:15 21:32	05:12 21:46	05:48 21:15	06:36 20:14	07:24 19:05	07:17 17:00	08:07 16:20
2	08:31 16:27	08:03 17:15	07:10 18:06	07:01 19:59	05:57 20:49	05:14 21:33	05:12 21:46	05:49 21:13	06:38 20:11	07:26 19:03	07:19 16:58	08:09 16:20
3	08:31 16:28	08:02 17:17	07:08 18:08	06:58 20:00	05:55 20:50	05:13 21:34	05:13 21:45	05:51 21:11	06:40 20:09	07:28 19:01	07:21 16:56	08:10 16:19
4	08:31 16:30	08:00 17:19	07:06 18:09	06:56 20:02	05:53 20:52	05:12 21:35	05:14 21:45	05:52 21:10	06:41 20:07	07:29 18:58	07:23 16:55	08:12 16:19
5	08:30 16:31	07:59 17:21	07:04 18:11	06:54 20:04	05:52 20:54	05:12 21:36	05:15 21:44	05:54 21:08	06:43 20:05	07:31 18:56	07:24 16:53	08:13 16:18
6	08:30 16:32	07:57 17:22	07:02 18:13	06:52 20:06	05:50 20:55	05:11 21:37	05:15 21:44	05:55 21:06	06:44 20:02	07:33 18:54	07:26 16:51	08:14 16:18
7	08:30 16:33	07:55 17:24	06:59 18:15	06:49 20:07	05:48 20:57	05:10 21:38	05:16 21:43	05:57 21:05	06:46 20:00	07:34 18:52	07:28 16:49	08:15 16:17
8	08:29 16:34	07:54 17:26	06:57 18:16	06:47 20:09	05:46 20:58	05:10 21:39	05:17 21:43	05:58 21:03	06:47 19:58	07:36 18:49	07:30 16:48	08:17 16:17
9	08:29 16:36	07:52 17:28	06:55 18:18	06:45 20:11	05:45 21:00	05:09 21:40	05:18 21:42	06:00 21:01	06:49 19:56	07:38 18:47	07:31 16:46	08:18 16:17
10	08:28 16:37	07:50 17:30	06:53 18:20	06:43 20:12	05:43 21:02	05:09 21:41	05:19 21:41	06:01 20:59	06:51 19:53	07:39 18:45	07:33 16:45	08:19 16:17
11	08:28 16:39	07:48 17:32	06:51 18:22	06:40 20:14	05:41 21:03	05:09 21:41	05:20 21:41	06:03 20:57	06:52 19:51	07:41 18:43	07:35 16:43	08:20 16:16
12	08:27 16:40	07:47 17:33	06:48 18:23	06:38 20:16	05:40 21:05	05:08 21:42	05:21 21:40	06:05 20:55	06:54 19:49	07:43 18:41	07:37 16:42	08:21 16:16
13	08:27 16:41	07:45 17:35	06:46 18:25	06:36 20:17	05:38 21:06	05:08 21:43	05:22 21:39	06:06 20:53	06:55 19:47	07:44 18:38	07:38 16:40	08:22 16:16
14	08:26 16:43	07:43 17:37	06:44 18:27	06:34 20:19	05:36 21:08	05:08 21:43	05:23 21:38	06:08 20:51	06:57 19:44	07:46 18:36	07:40 16:39	08:23 16:16
15	08:25 16:44	07:41 17:39	06:42 18:28	06:32 20:21	05:35 21:09	05:08 21:44	05:25 21:37	06:09 20:50	06:59 19:42	07:48 18:34	07:42 16:37	08:24 16:16
16	08:24 16:46	07:39 17:41	06:39 18:30	06:30 20:22	05:33 21:11	05:08 21:44	05:26 21:36	06:11 20:48	07:00 19:40	07:49 18:32	07:44 16:36	08:25 16:16
17	08:23 16:48	07:37 17:43	06:37 18:32	06:27 20:24	05:32 21:12	05:07 21:45	05:27 21:35	06:12 20:46	07:02 19:37	07:51 18:30	07:45 16:35	08:25 16:17
18	08:22 16:49	07:35 17:44	06:35 18:34	06:25 20:26	05:31 21:14	05:07 21:45	05:28 21:34	06:14 20:44	07:03 19:35	07:53 18:28	07:47 16:33	08:26 16:17
19	08:21 16:51	07:33 17:46	06:32 18:35	06:23 20:27	05:29 21:15	05:07 21:46	05:29 21:33	06:16 20:41	07:05 19:33	07:55 18:26	07:49 16:32	08:27 16:17
20	08:20 16:52	07:31 17:48	06:30 18:37	06:21 20:29	05:28 21:17	05:08 21:46	05:31 21:32	06:17 20:39	07:07 19:30	07:56 18:23	07:50 16:31	08:28 16:17
21	08:19 16:54	07:29 17:50	06:28 18:39	06:19 20:31	05:26 21:18	05:08 21:46	05:32 21:30	06:19 20:37	07:08 19:28	07:58 18:21	07:52 16:30	08:28 16:18
22	08:18 16:56	07:27 17:52	06:26 18:40	06:17 20:32	05:25 21:20	05:08 21:46	05:33 21:29	06:20 20:35	07:10 19:26	08:00 18:19	07:54 16:28	08:29 16:18
23	08:17 16:57	07:25 17:53	06:23 18:42	06:15 20:34	05:24 21:21	05:08 21:46	05:35 21:28	06:22 20:33	07:11 19:23	08:01 18:17	07:55 16:27	08:29 16:19
24	08:16 16:59	07:23 17:55	06:21 18:44	06:13 20:36	05:23 21:22	05:08 21:47	05:36 21:27	06:24 20:31	07:13 19:21	08:03 18:15	07:57 16:26	08:30 16:19
25	08:15 17:01	07:21 17:57	06:19 18:45	06:11 20:37	05:22 21:24	05:09 21:47	05:37 21:25	06:25 20:29	07:15 19:19	07:05 17:13	07:58 16:25	08:30 16:20
26	08:13 17:03	07:19 17:59	06:17 18:47	06:09 20:39	05:20 21:25	05:09 21:47	05:39 21:24	06:27 20:27	07:16 19:17	07:07 17:11	08:00 16:24	08:30 16:21
27	08:12 17:04	07:17 18:01	06:14 18:49	06:07 20:41	05:19 21:26	05:10 21:47	05:40 21:22	06:28 20:25	07:18 19:14	07:08 17:09	08:01 16:24	08:31 16:22
28	08:11 17:06	07:15 18:02	06:12 18:50	06:05 20:42	05:18 21:27	05:10 21:47	05:42 21:21	06:30 20:22	07:20 19:12	07:10 17:07	08:03 16:23	08:31 16:22
29	08:09 17:08		07:10 19:52	06:03 20:44	05:17 21:29	05:11 21:46	05:43 21:19	06:32 20:20	07:21 19:10	07:12 17:06	08:04 16:22	08:31 16:23
30	08:08 17:10		07:07 19:54	06:01 20:45	05:16 21:30	05:11 21:46	05:45 21:18	06:33 20:18	07:23 19:07	07:14 17:04	08:06 16:21	08:31 16:24
31	08:07 17:12		07:05 19:55		05:15 21:31		05:46 21:16	06:35 20:16		07:15 17:02		08:31 16:25
Sonnenscheinstunden	261	278	367	415	483	496	500	453	381	332	268	246
astr.max.mögl.Beschattung												

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Tag im Monat	Sonnenaufgang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang (WEA mit erstem Schatten)
	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Wohlbedacht Schattenrezeptor: O - IP15

Annahmen für Schattenwurfberechnung

Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:

- Die Sonne scheint täglich von Sonnenauf- bis -untergang
Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung
Die Windenergieanlage/n ist/sind immer in Betrieb

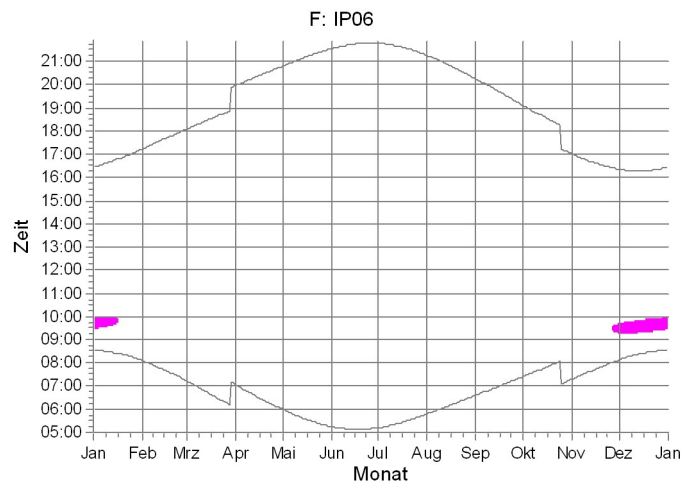
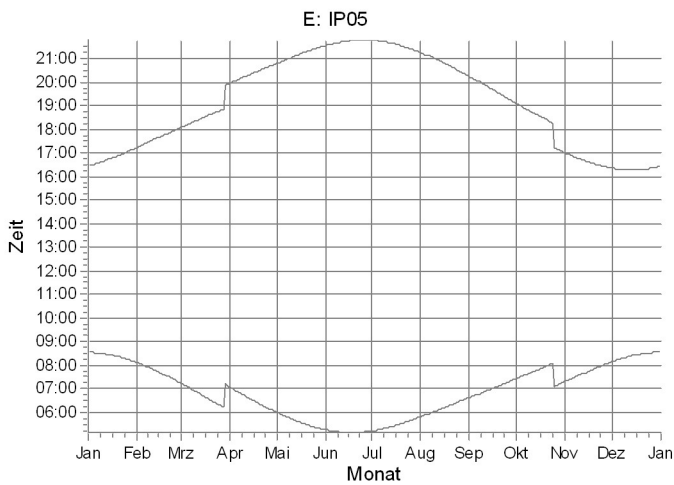
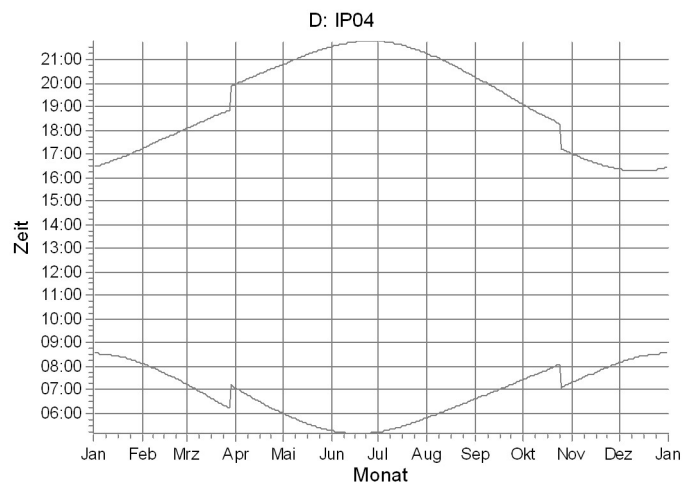
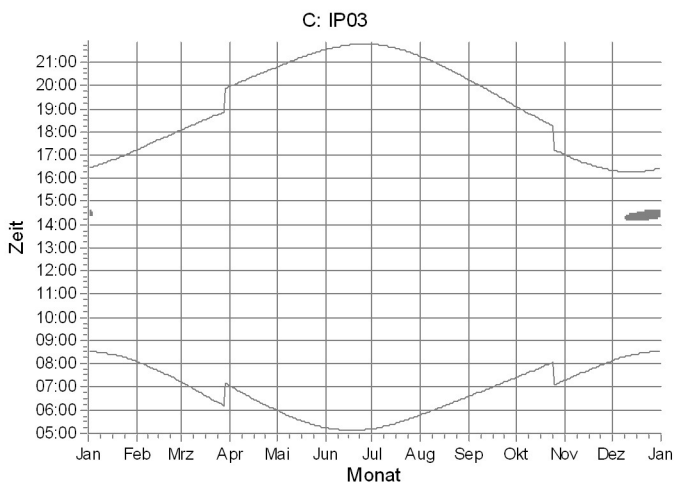
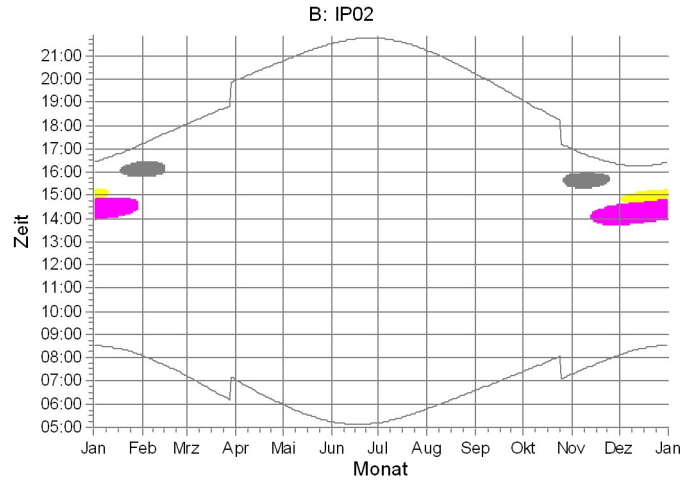
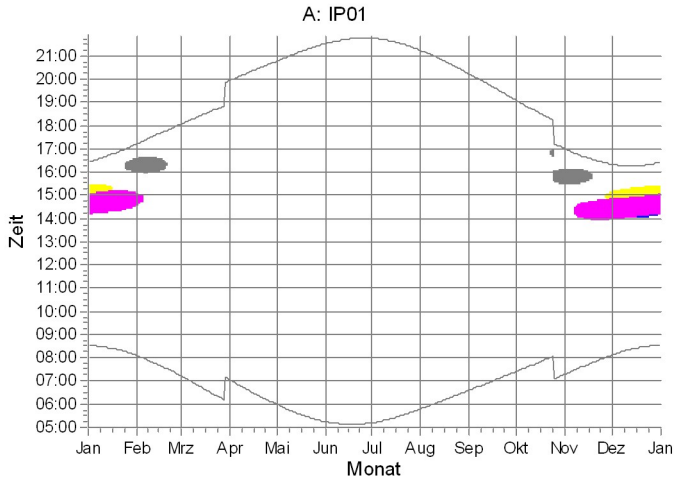
Table with 12 columns (Januar to Dezember) and 31 rows of data showing sunrise/sunset times and shading durations. Includes summary rows for 'Sonnenscheinstunden' and 'astr.max.mögl.Beschattung'.

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Table with 4 columns: Tag im Monat, Sonnenaufgang (SS:MM), Sonnenuntergang (SS:MM), Minuten mit Schatten. Sub-headers for Zeitpunkt (SS:MM) and Schattenanfang/-ende (WEA mit erstem/letztem Schatten).

SHADOW - Grafischer Kalender

Berechnung: ZB Wohlbedacht

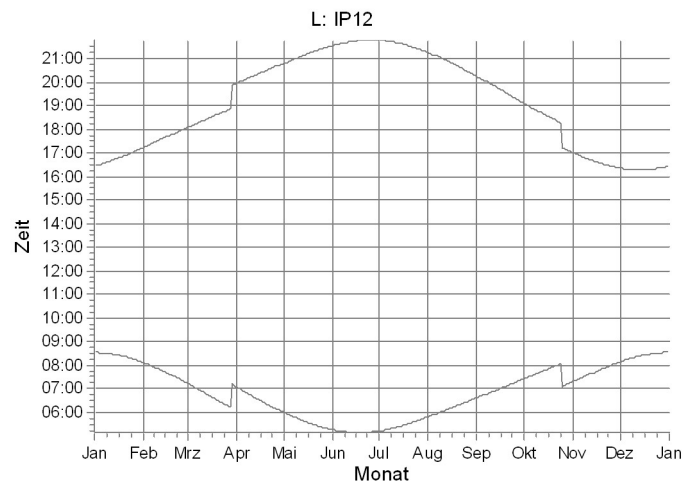
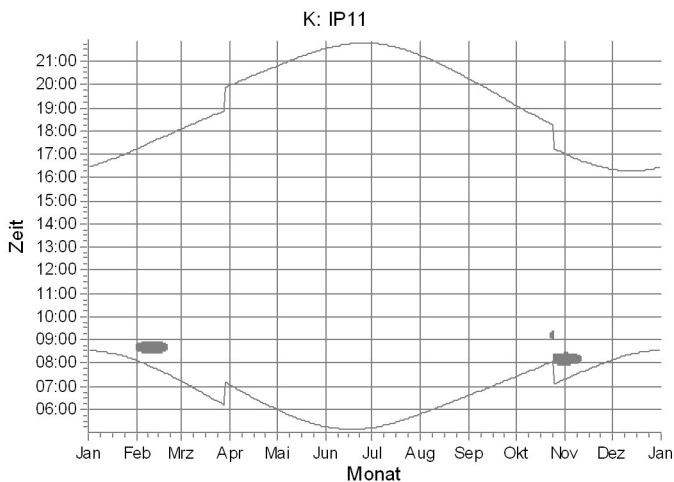
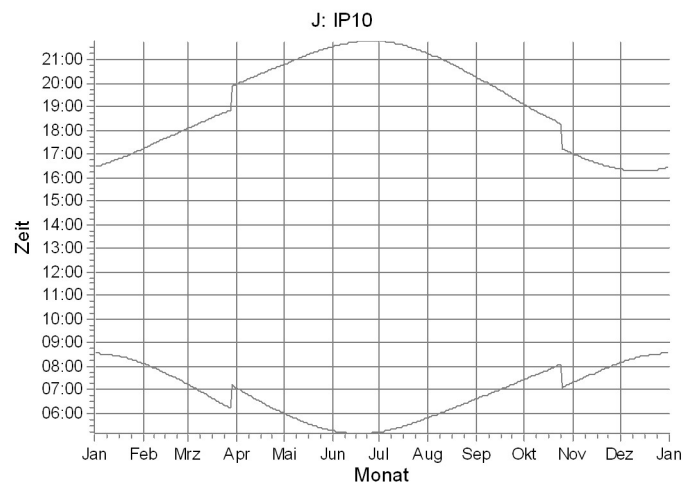
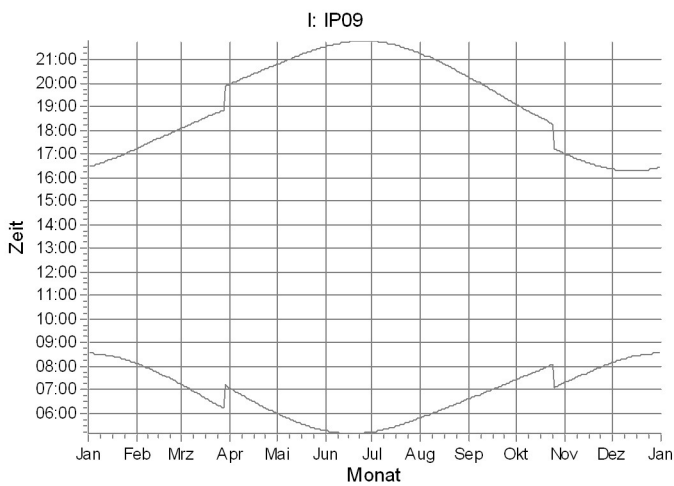
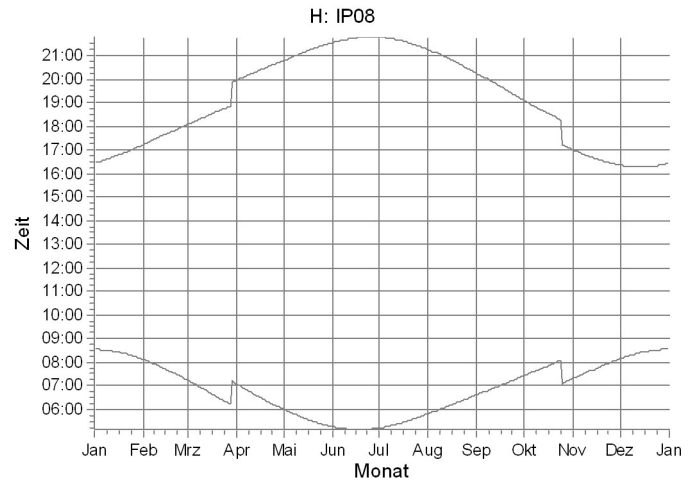
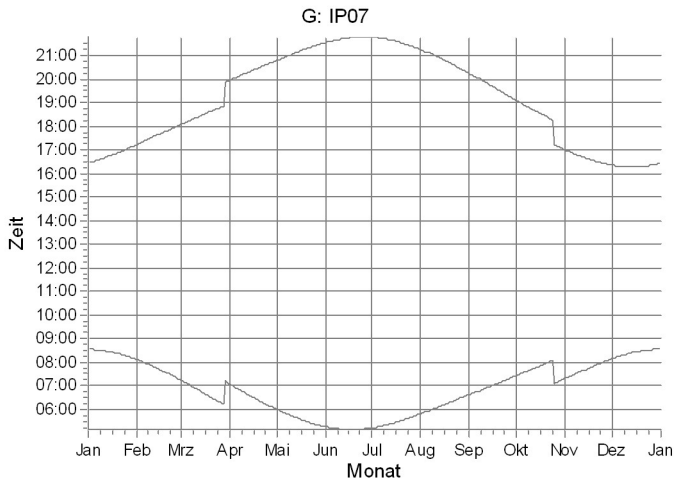


WEA

- 2: WEA12
- 3: WEA13
- 4: WEA15
- 5: WEA16

SHADOW - Grafischer Kalender

Berechnung: ZB Wohlbedacht

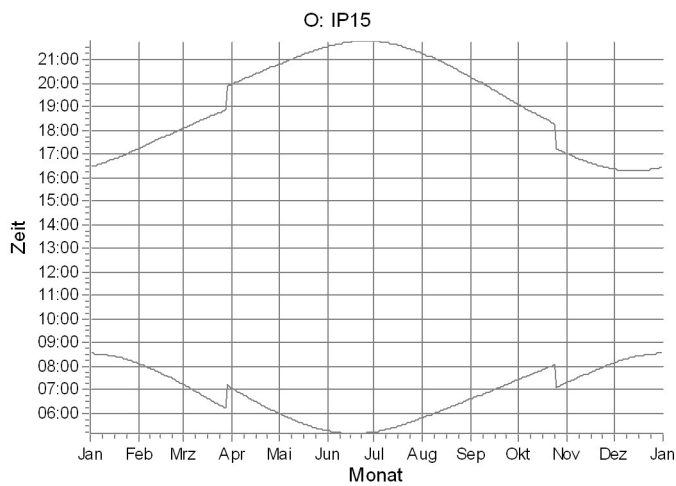
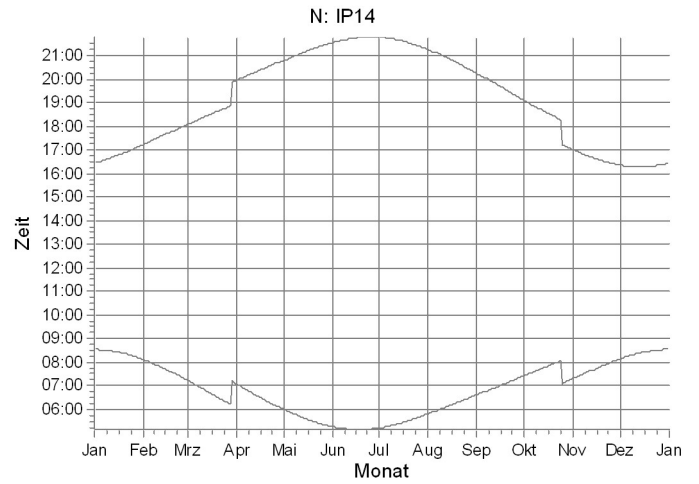
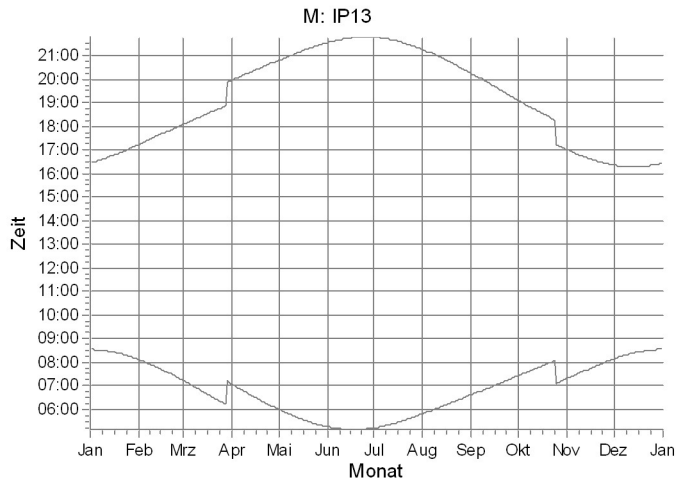


WEA

4: WEA15

SHADOW - Grafischer Kalender

Berechnung: ZB Wohlbedacht



WEA

SHADOW - Kalender pro WEA

Berechnung: ZB Wohlbedacht WEA: 2 - WEA12
Annahmen für Schattenwurfberechnung

Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:
Die Sonne scheint täglich von Sonnenauf- bis -untergang
Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung
Die Windenergieanlage/n ist/sind immer in Betrieb

Table with columns for months (Januar to Dezember) and rows for days (1 to 31). Columns contain start and end times for shadows. Summary rows at the bottom show 'Sonnenscheinstunden' and 'Anzahl Minuten mit Schatten' for each month.

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Tag im Monat Sonnenaufgang (SS:MM) Sonnenuntergang (SS:MM) Zeitpunkt (SS:MM) Zeitpunkt (SS:MM) Schattenanfang-Zeitpunkt (SS:MM) Schattenanfang-Zeitpunkt (SS:MM) Schattenende/Minuten mit Schatten Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Wohlbedacht WEA: 4 - WEA15
Annahmen für Schattenwurfberechnung

Die dargestellten Zeiten sind die astronomisch maximal mögliche Beschattungsdauer, berechnet unter folgenden Annahmen:
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Die Rotorfläche steht immer senkrecht zur Sonneneinflussrichtung
Die Windenergieanlage/n ist/sind immer in Betrieb

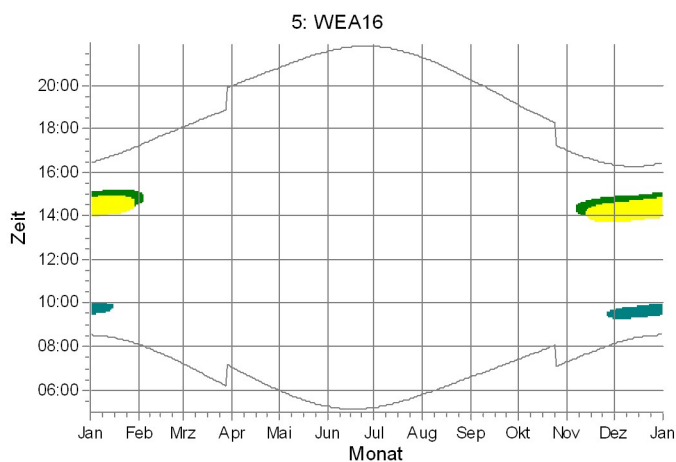
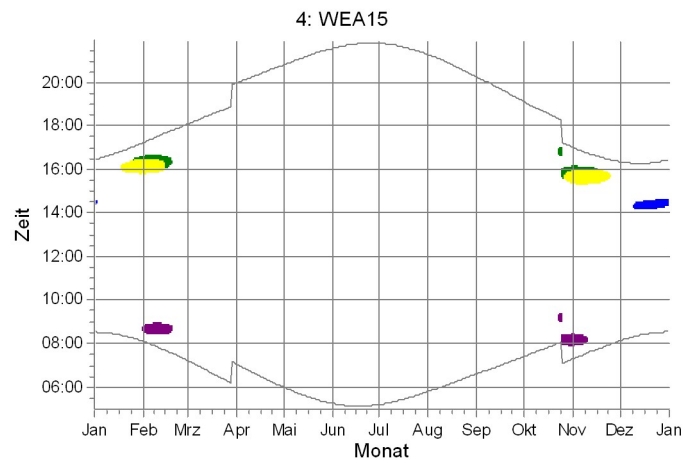
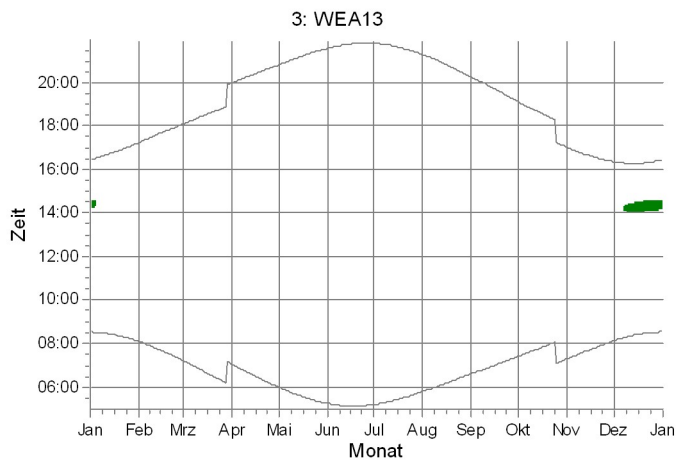
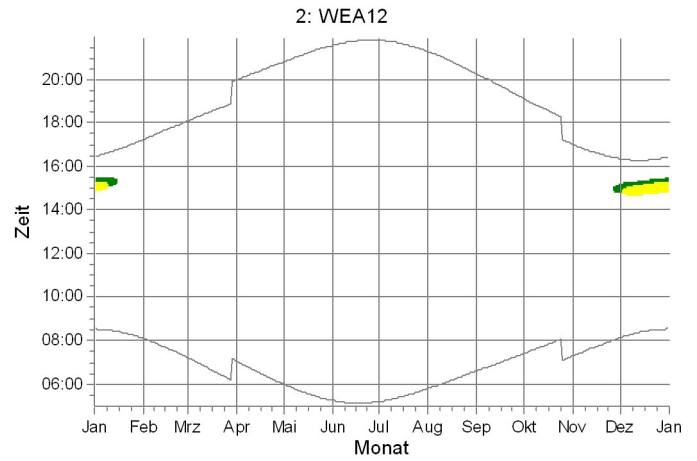
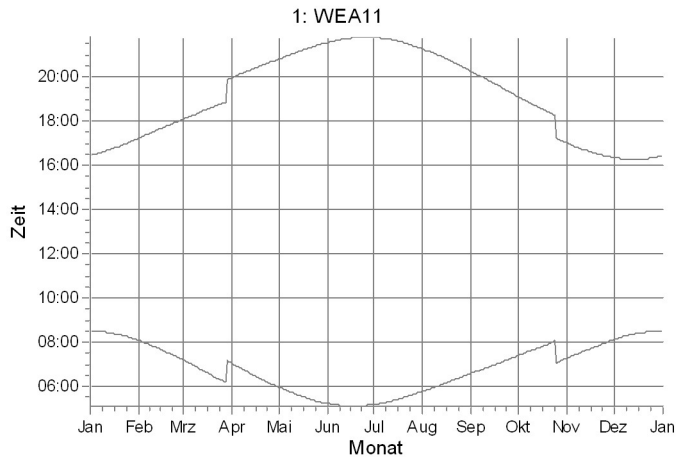
Table with columns for months (Januar to Dezember) and rows for specific dates. It contains detailed data on solar irradiation (Sonnenscheinstunden) and shadowed minutes (Anzahl Minuten mit Schatten) for each day.

Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Tag im Monat Sonnenaufgang (SS:MM) Sonnenuntergang (SS:MM) Zeitpunkt (SS:MM) Zeitpunkt (SS:MM) Schattenanfang-Zeitpunkt (SS:MM) Schattenanfang-Zeitpunkt (SS:MM) Schattenende/Minuten mit Schatten Schattenende/Minuten mit Schatten

SHADOW - Grafischer Kalender pro WEA

Berechnung: ZB Wohlbedacht



Schattenrezeptoren

A: IP01
 B: IP02
 C: IP03
 F: IP06
 K: IP11