

SHADOW - Hauptergebnis

Berechnung: ZB Layout GIII_33

Annahmen für Schattenwurfberechnung

Beschattungsbereich der WEA

Schatten nur relevant, wo Rotorblatt mind. 20% der Sonne verdeckt

Siehe WEA-Tabelle

Minimale relevante Sonnenhöhe über Horizont 3 °
Tage zwischen Berechnungen 1 Tag(e)
Berechnungszeitsprung 1 Minuten

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

Eine WEA wird nicht berücksichtigt, wenn sie von keinem Teil der
Rezeptorfläche aus sichtbar ist. Die Sichtbarkeitsberechnung basiert auf
den folgenden Annahmen:

Verwendete Höhenlinien: Höhenraster-Objekt: TrebitzIII_EMDGrid_0.wpg (1)
Rasterauflösung: 1,0 m

Alle Koordinatenangaben in:
UTM (north)-ETRS89 Zone: 33

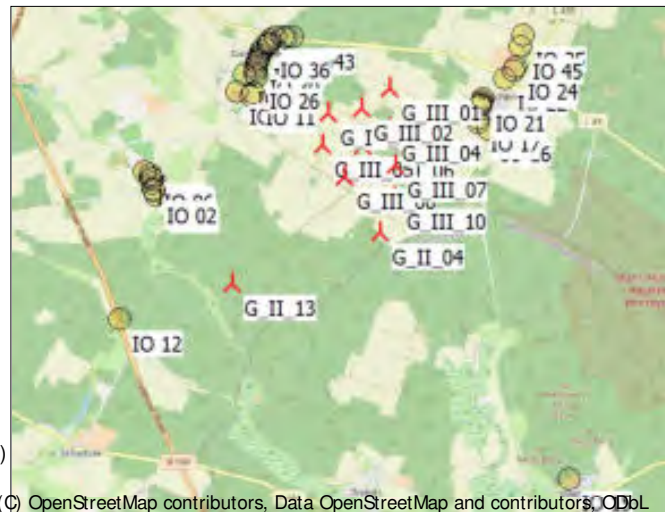
WEA

	Ost	Nord	Z	Beschreibung	WEA-Typ							Schattendaten	
					Ak- tu- ell	Hersteller	Typ	Nenn- leistung	Rotor- durch- messer	NH	Beschatt.- Bereich	U/min	
			[m]					[kW]	[m]	[m]	[m]	[U/min]	
G_III_01	454.225	5.770.915	72,2	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_III_02	453.855	5.770.645	71,6	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_III_03	453.399	5.770.588	71,3	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_III_04	454.222	5.770.380	73,6	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_III_05	453.327	5.770.171	72,4	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_III_06	453.855	5.770.149	74,3	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_III_07	454.292	5.769.889	74,1	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_III_08	453.623	5.769.745	73,0	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_III_10	454.281	5.769.486	78,3	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_II_04	454.080	5.769.016	73,6	VESTAS V162 7200 162.0 !-! NH: 1...Nein	VESTAS	V162-7.200	7.200	162,0	169,0	2.041	-		
G_II_13	452.113	5.768.352	62,7	VESTAS V150 6000 150.0 !-! NH: 1...Nein	VESTAS	V150-6.000	6.000	150,0	169,0	1.897	-		

Schattenrezeptor-Eingabe

Nr.	Name	Ost	Nord	Z	Breite	Höhe	Höhe ü. Gr.	Neigung des Fensters	Ausrichtungsmodus	Augenhöhe (ZVI) ü. Gr.
				[m]	[m]	[m]	[m]	[°]		[m]
IO 01	Karras, Dorfstraße 6	451.106	5.769.518	52,5	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 02	Karras, Dorfstraße 5a	451.083	5.769.579	52,5	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 03	Karras, Dorfstraße 5	451.078	5.769.609	52,6	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 04	Karras, Dorfstraße 4	451.070	5.769.682	52,6	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 05	Karras, Dorfstraße 2	451.072	5.769.739	52,4	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 06	Karras, Dorfstraße 2a	451.054	5.769.759	52,4	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 07	Karras, Dorfstraße 1	451.042	5.769.805	52,5	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 08	Karras, Dorfstraße 10	450.973	5.769.836	52,7	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 09	Günthersdorf 16	452.197	5.770.886	56,2	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 10	Günthersdorf 15	452.390	5.770.821	55,9	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 11	Günthersdorf 14	452.419	5.770.872	56,1	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 12	Postbrücke 1	450.609	5.767.891	52,8	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 13	Weichensdorf, Dorfstraße 53	455.388	5.770.440	75,5	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 14	Weichensdorf, Dorfstraße 48	455.456	5.770.731	76,3	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 15	Ullersdorf, am Feldweg 17	456.567	5.765.729	65,2	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 16	Weichensdorf, Dorfstraße 63	455.533	5.770.344	76,5	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 17	Weichensdorf, Dorfstraße 50	455.408	5.770.497	76,3	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 18	Weichensdorf, Dorfstraße 45	455.431	5.770.650	77,3	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 19	Weichensdorf, Dorfstraße 46	455.443	5.770.680	76,9	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 20	Weichensdorf, Dorfstraße 47	455.445	5.770.706	76,5	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 21	Weichensdorf, Dorfstraße 48A	455.462	5.770.759	76,2	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1

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Neue WEA

Maßstab 1:100.000
Schattenrezeptor

SHADOW - Hauptergebnis

Berechnung: ZB Layout GIII_33

...(Fortsetzung von vorheriger Seite)

Nr.	Name	Ost	Nord	Z	Breite	Höhe	Höhe ü.Gr.	Neigung des Fensters	Ausrichtungsmodus	Augenhöhe (ZVI) ü.Gr.
				[m]	[m]	[m]	[m]	[°]		[m]
IO 22	Weichensdorf, Dorfstraße 15	455.757	5.771.030	77,4	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 23	Weichensdorf, Dorfstraße 15A	455.885	5.771.120	78,1	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 24	Weichensdorf, Dorfstraße 10A	455.901	5.771.181	78,0	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 25	Weichensdorf, Dorfstraße 1	456.005	5.771.604	74,8	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 26	Friedland, Günthersdorf 13	452.471	5.771.077	56,0	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 27	Friedland, Günthersdorf 12	452.447	5.771.122	56,1	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 28	Friedland, Günthersdorf 11	452.452	5.771.171	55,9	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 29	Friedland, Günthersdorf 10	452.459	5.771.215	55,9	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 30	Friedland, Günthersdorf 9	452.471	5.771.255	56,1	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 31	Friedland, Günthersdorf 8B	452.486	5.771.297	55,8	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 32	Friedland, Günthersdorf 8	452.493	5.771.327	56,0	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 33	Friedland, Günthersdorf 7	452.518	5.771.367	56,2	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 34	Friedland, Günthersdorf 6	452.533	5.771.410	56,5	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 35	Friedland, Günthersdorf 5	452.567	5.771.453	56,7	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 36	Friedland, Günthersdorf 4	452.609	5.771.489	57,9	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 37	Friedland, Günthersdorf 3	452.620	5.771.510	58,1	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 38	Friedland, Günthersdorf 2	452.636	5.771.531	58,5	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 39	Friedland, Günthersdorf 1	452.652	5.771.561	58,3	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 40	Friedland, Günthersdorf 44	452.720	5.771.599	61,2	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 41	Friedland, Günthersdorf 45	452.822	5.771.589	63,9	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 42	Friedland, Günthersdorf 46	452.865	5.771.586	65,1	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 43	Friedland, Günthersdorf 48	452.947	5.771.588	65,6	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 44	Friedland, Günthersdorf 21	452.298	5.771.102	55,4	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1
IO 45	Weichensdorf, Dorfstraße 3	455.961	5.771.449	76,4	0,1	0,1	2,0	90,0	"Gewächshaus-Modus"	2,1

Berechnungsergebnisse

Schattenrezeptor

Nr.	Name	astron. max. mögl. Beschattungsdauer		
		Stunden/Jahr	Schattentage/Jahr	Max.Schattendauer/Tag
		[h/a]	[d/a]	[h/d]
IO 01	Karras, Dorfstraße 6	23:38	70	0:24
IO 02	Karras, Dorfstraße 5a	21:46	64	0:23
IO 03	Karras, Dorfstraße 5	20:48	62	0:23
IO 04	Karras, Dorfstraße 4	17:00	52	0:23
IO 05	Karras, Dorfstraße 2	13:27	46	0:21
IO 06	Karras, Dorfstraße 2a	12:47	44	0:21
IO 07	Karras, Dorfstraße 1	10:15	39	0:20
IO 08	Karras, Dorfstraße 10	11:07	42	0:20
IO 09	Günthersdorf 16	60:25	144	0:48
IO 10	Günthersdorf 15	84:27	173	0:56
IO 11	Günthersdorf 14	87:39	177	0:59
IO 12	Postbrücke 1	11:07	38	0:23
IO 13	Weichensdorf, Dorfstraße 53	125:32	300	0:49
IO 14	Weichensdorf, Dorfstraße 48	83:24	237	0:30
IO 15	Ullersdorf, am Feldweg 17	0:00	0	0:00
IO 16	Weichensdorf, Dorfstraße 63	92:51	272	0:38
IO 17	Weichensdorf, Dorfstraße 50	115:46	279	0:48
IO 18	Weichensdorf, Dorfstraße 45	95:41	255	0:43
IO 19	Weichensdorf, Dorfstraße 46	86:36	244	0:31
IO 20	Weichensdorf, Dorfstraße 47	85:35	240	0:31
IO 21	Weichensdorf, Dorfstraße 48A	81:05	232	0:30
IO 22	Weichensdorf, Dorfstraße 15	33:47	124	0:24
IO 23	Weichensdorf, Dorfstraße 15A	23:13	91	0:22
IO 24	Weichensdorf, Dorfstraße 10A	14:49	56	0:22
IO 25	Weichensdorf, Dorfstraße 1	6:20	26	0:20
IO 26	Friedland, Günthersdorf 13	95:04	198	1:00
IO 27	Friedland, Günthersdorf 12	89:52	194	0:58
IO 28	Friedland, Günthersdorf 11	85:42	187	0:55
IO 29	Friedland, Günthersdorf 10	82:34	182	0:52
IO 30	Friedland, Günthersdorf 9	80:04	177	0:51
IO 31	Friedland, Günthersdorf 8B	76:51	173	0:49
IO 32	Friedland, Günthersdorf 8	73:57	168	0:48
IO 33	Friedland, Günthersdorf 7	70:22	163	0:46

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SHADOW - Hauptergebnis

Berechnung: ZB Layout GIII_33

...(Fortsetzung von vorheriger Seite)

Nr.	Name	astron. max. mögl. Beschattungsdauer		
		Stunden/Jahr	Schattentage/Jahr	Max.Schattendauer/Tag
		[h/a]	[d/a]	[h/d]
IO 34	Friedland, Günthersdorf 6	66:54	159	0:43
IO 35	Friedland, Günthersdorf 5	65:22	154	0:41
IO 36	Friedland, Günthersdorf 4	70:41	148	0:39
IO 37	Friedland, Günthersdorf 3	70:59	146	0:40
IO 38	Friedland, Günthersdorf 2	70:55	143	0:41
IO 39	Friedland, Günthersdorf 1	70:43	140	0:43
IO 40	Friedland, Günthersdorf 44	71:10	134	0:49
IO 41	Friedland, Günthersdorf 45	73:05	131	0:55
IO 42	Friedland, Günthersdorf 46	71:49	130	0:54
IO 43	Friedland, Günthersdorf 48	70:12	128	0:50
IO 44	Friedland, Günthersdorf 21	70:13	184	0:47
IO 45	Weichensdorf, Dorfstraße 3	6:46	27	0:20

Gesamtdauer Beschattung an Rezeptoren pro WEA

Nr.	Name	Maximal [h/a]
G_III_01	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (651)	167:17
G_III_02	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (652)	153:33
G_III_03	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (653)	224:33
G_III_04	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (654)	136:58
G_III_05	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (655)	120:12
G_III_06	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (656)	133:46
G_III_07	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (657)	58:01
G_III_08	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (658)	83:41
G_III_10	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (659)	59:49
G_II_04	VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (649)	30:30
G_II_13	VESTAS V150 6000 150.0 !-! NH: 169,0 m (Ges:244,0 m) (650)	44:49

Summen in Rezeptortabelle und WEA-Tabelle können sich unterscheiden, da eine WEA gleichzeitig an zwei oder mehr Rezeptoren Beschattung verursachen kann und/oder ein Rezeptor gleichzeitig von zwei oder mehr WEA beschattet werden kann.

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 01 - Karras, Dorfstraße 6
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	08:12	08:56 (G.II_13)	07:45	06:51	06:40	05:35	04:50	04:47	05:23	06:13	07:03	06:57	07:48	08:39 (G.II_13)			
2	16:01	20 09:16 (G.II_13)	16:43	17:41	19:36	20:27	21:13	21:27	20:55	19:53	18:43	16:37	15:56	24 09:03 (G.II_13)			
3	08:12	08:55 (G.II_13)	07:43	06:49	06:38	05:33	04:49	04:47	05:25	06:15	07:04	06:59	07:50	08:40 (G.II_13)			
4	16:02	21 09:16 (G.II_13)	16:51	17:43	19:37	20:29	21:14	21:27	20:53	19:51	18:41	16:35	15:55	24 09:04 (G.II_13)			
5	08:12	08:56 (G.II_13)	07:42	06:47	06:36	05:31	04:48	04:48	05:26	06:17	07:06	07:00	07:51	08:40 (G.II_13)			
6	16:04	21 09:17 (G.II_13)	16:53	17:45	19:39	20:30	21:15	21:26	20:52	19:48	18:38	16:33	15:55	24 09:04 (G.II_13)			
7	08:12	08:56 (G.II_13)	07:40	06:45	06:34	05:30	04:47	04:49	05:28	06:18	07:08	07:02	07:52	08:41 (G.II_13)			
8	16:05	22 09:18 (G.II_13)	16:55	17:47	19:41	20:32	21:16	21:26	20:50	19:46	18:36	16:31	15:54	24 09:05 (G.II_13)			
9	08:11	08:56 (G.II_13)	07:39	06:43	06:31	05:28	04:47	04:50	05:30	06:20	07:09	07:04	07:54	08:41 (G.II_13)			
10	16:06	22 09:18 (G.II_13)	16:57	17:49	19:43	20:34	21:17	21:26	20:48	19:44	18:34	16:29	15:53	23 09:04 (G.II_13)			
11	08:11	08:57 (G.II_13)	07:37	06:40	06:29	05:26	04:46	04:50	05:31	06:22	07:11	07:06	07:55	08:43 (G.II_13)			
12	16:07	22 09:19 (G.II_13)	16:59	17:50	19:44	20:35	21:18	21:25	20:46	19:41	18:31	16:27	15:53	22 09:05 (G.II_13)			
13	08:11	08:56 (G.II_13)	07:35	06:38	06:27	05:24	04:45	04:51	05:33	06:23	07:13	07:08	07:56	08:43 (G.II_13)			
14	16:08	23 09:19 (G.II_13)	17:01	17:52	19:46	20:37	21:19	21:24	20:45	19:39	18:29	16:26	15:53	22 09:05 (G.II_13)			
15	08:10	08:57 (G.II_13)	07:33	06:36	06:24	05:22	04:45	04:52	05:34	06:25	07:15	07:09	07:57	08:43 (G.II_13)			
16	16:10	24 09:21 (G.II_13)	17:03	17:54	19:48	20:39	21:20	21:24	20:43	19:37	18:27	16:24	15:52	22 09:05 (G.II_13)			
17	08:10	08:57 (G.II_13)	07:32	06:34	06:22	05:21	04:44	04:53	05:36	06:26	07:16	07:11	07:59	08:45 (G.II_13)			
18	16:11	24 09:21 (G.II_13)	17:04	17:56	19:49	20:40	21:21	21:23	20:41	19:34	18:25	16:22	15:52	21 09:06 (G.II_13)			
19	08:09	08:57 (G.II_13)	07:30	06:31	06:20	05:19	04:44	04:54	05:37	06:28	07:18	07:13	08:00	08:45 (G.II_13)			
20	16:13	24 09:21 (G.II_13)	17:06	17:58	19:51	20:42	21:22	21:22	20:39	19:32	18:22	16:21	15:52	21 09:06 (G.II_13)			
21	08:09	08:57 (G.II_13)	07:28	06:29	06:18	05:17	04:43	04:55	05:39	06:30	07:20	07:15	08:01	08:46 (G.II_13)			
22	16:14	24 09:21 (G.II_13)	17:08	17:59	19:53	20:43	21:23	21:22	20:37	19:30	18:20	16:19	15:52	20 09:06 (G.II_13)			
23	08:08	08:59 (G.II_13)	07:26	06:27	06:15	05:15	04:43	04:56	05:41	06:31	07:21	07:17	08:02	08:46 (G.II_13)			
24	16:15	23 09:22 (G.II_13)	17:10	18:01	19:55	20:45	21:23	21:21	20:35	19:27	18:18	16:18	15:51	20 09:06 (G.II_13)			
25	08:07	08:59 (G.II_13)	07:24	06:24	06:13	05:14	04:43	04:57	05:42	06:33	07:23	07:18	08:03	08:47 (G.II_13)			
26	16:17	24 09:23 (G.II_13)	17:12	18:03	19:56	20:47	21:24	21:20	20:33	19:25	18:16	16:16	15:51	20 09:07 (G.II_13)			
27	08:07	08:59 (G.II_13)	07:22	06:22	06:11	05:12	04:43	04:59	05:44	06:35	07:25	07:20	08:04	08:47 (G.II_13)			
28	16:18	24 09:23 (G.II_13)	17:14	18:05	19:58	20:48	21:25	21:19	20:31	19:23	18:13	16:13	15:51	20 09:07 (G.II_13)			
29	08:06	09:00 (G.II_13)	07:20	06:20	06:09	05:11	04:42	05:00	05:46	06:36	07:27	07:22	08:05	08:48 (G.II_13)			
30	16:20	23 09:23 (G.II_13)	17:16	18:06	20:00	20:50	21:25	21:18	20:29	19:20	18:11	16:13	15:51	19 09:07 (G.II_13)			
31	08:05	09:00 (G.II_13)	07:18	06:18	06:06	05:09	04:42	05:01	05:47	06:38	07:28	07:24	08:06	08:49 (G.II_13)			
32	16:22	23 09:23 (G.II_13)	17:17	18:08	20:01	20:51	21:26	21:17	20:27	19:18	18:09	16:12	15:52	19 09:08 (G.II_13)			
33	08:04	09:01 (G.II_13)	07:16	06:15	06:04	05:08	04:42	05:02	05:49	06:40	07:30	07:25	08:06	08:49 (G.II_13)			
34	16:23	23 09:24 (G.II_13)	17:19	18:10	20:03	20:53	21:26	21:16	20:25	19:16	18:07	16:10	7 08:51 (G.II_13)	15:52	18 09:07 (G.II_13)		
35	08:03	09:02 (G.II_13)	07:14	06:13	06:02	05:06	04:42	05:03	05:50	06:41	07:32	07:27	08:07	08:50 (G.II_13)			
36	16:25	22 09:24 (G.II_13)	17:21	18:12	20:05	20:54	21:27	21:15	20:23	19:13	18:05	16:09	12 08:54 (G.II_13)	15:52	18 09:08 (G.II_13)		
37	08:02	09:02 (G.II_13)	07:12	06:11	06:00	05:05	04:42	05:05	05:52	06:43	07:34	07:29	08:08	08:50 (G.II_13)			
38	16:26	21 09:23 (G.II_13)	17:23	18:13	20:07	20:56	21:27	21:14	20:21	19:11	18:03	16:08	15 08:56 (G.II_13)	15:52	19 09:09 (G.II_13)		
39	08:01	09:03 (G.II_13)	07:10	06:08	05:58	05:03	04:42	05:06	05:54	06:44	07:35	07:31	08:09	08:50 (G.II_13)			
40	16:28	20 09:23 (G.II_13)	17:25	18:15	20:08	20:57	21:27	21:12	20:19	19:09	18:01	16:07	17 08:57 (G.II_13)	15:53	18 09:08 (G.II_13)		
41	08:00	09:04 (G.II_13)	07:08	06:06	05:56	05:02	04:42	05:07	05:55	06:46	07:37	07:32	08:09	08:51 (G.II_13)			
42	16:30	19 09:23 (G.II_13)	17:27	18:17	20:10	20:59	21:27	21:11	20:17	19:06	17:58	16:05	19 08:58 (G.II_13)	15:53	18 09:09 (G.II_13)		
43	07:59	09:05 (G.II_13)	07:06	06:04	05:54	05:01	04:43	05:09	05:57	06:48	07:39	07:34	08:10	08:51 (G.II_13)			
44	16:32	17 09:22 (G.II_13)	17:29	18:19	20:12	21:00	21:28	21:10	20:15	19:04	17:56	16:04	20 08:59 (G.II_13)	15:53	18 09:09 (G.II_13)		
45	07:58	09:06 (G.II_13)	07:04	06:01	05:51	04:59	04:43	05:10	05:59	06:49	07:41	07:36	08:10	08:52 (G.II_13)			
46	16:33	15 09:21 (G.II_13)	17:30	18:20	20:13	21:02	21:28	21:09	20:13	19:02	17:54	16:03	21 09:00 (G.II_13)	15:54	18 09:10 (G.II_13)		
47	07:56	09:08 (G.II_13)	07:02	05:59	05:49	04:58	04:43	05:11	06:00	06:51	07:42	07:37	08:11	08:52 (G.II_13)			
48	16:35	12 09:20 (G.II_13)	17:32	18:22	20:15	21:03	21:28	21:07	20:10	18:59	17:52	16:02	22 09:01 (G.II_13)	15:55	19 09:11 (G.II_13)		
49	07:55	09:10 (G.II_13)	07:00	05:57	05:47	04:57	04:44	05:13	06:02	06:53	07:44	07:39	08:11	08:54 (G.II_13)			
50	16:37	7 09:17 (G.II_13)	17:34	18:24	20:17	21:04	21:28	21:06	20:08	18:57	16:50	16:01	23 09:02 (G.II_13)	15:55	18 09:12 (G.II_13)		
51	07:54		06:58	05:54	05:45	04:56	04:44	05:14	06:04	06:54	07:46	07:40	08:38 (G.II_13)	08:11	08:54 (G.II_13)		
52	16:39		17:36	18:25	20:19	21:06	21:28	21:04	20:06	18:55	16:48	16:00	23 09:01 (G.II_13)	15:56	18 09:12 (G.II_13)		
53	07:52		06:56	05:52	05:43	04:55	04:44	05:16	06:05	06:56	07:48	07:42	08:39 (G.II_13)	08:12	08:54 (G.II_13)		
54	16:40		17:38	18:27	20:20	21:07	21:28	21:03	20:04	18:52	16:45	16:00	23 09:02 (G.II_13)	15:59	19 09:13 (G.II_13)		
55	07:51		06:54	05:50	05:41	04:54	04:45	05:17	06:07	06:58	06:50	07:44	08:39 (G.II_13)	08:12	08:54 (G.II_13)		
56	16:42			18:29	20:22	21:08	21:28	21:01	20:02	18:50	16:44	15:58	24 09:03 (G.II_13)	15:57	19 09:13 (G.II_13)		
57	07:50		06:47	05:39	04:53	04:45	05:19	06:08	06:59	06:51	07:45		08:39 (G.II_13)	08:12	08:54 (G.II_13)		
58	16:44		19:31	20:24	21:10	21:28	21:00	19:59	18:48	16:42	15:57	24 09:03 (G.II_13)	15:58	20 09:14 (G.II_13)			
59	07:48		06:45	05:37	04:52	04:46	05:20	06:10	07:01	06:53	07:47		08:04 (G.II_13)	08:12	08:55 (G.II_13)		
60	16:46		19:32	20:25	21:11	21:27	20:58	19:57	18:45	16:40	15:57	24 09:04 (G.II_13)	15:59	19 09:14 (G.II_13)			
61	07:47		06:43		04:51		05:22	06:12		06:55			08:12	08:55 (G.II_13)			
62	16:48		19:34		21:12		20:57	19:55		16:38			16:00	20 09:15 (G.II_13)			
Sonnenscheinstunden	258		277		416		500		503		454		381		331		266
astr.max.mögl.Beschattung	520												274				624

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 Layout GIII_33 Schattenrezeptor: IO 02 - Karras, Dorfstraße 5a
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	08:12 16:01	08:58 (G_II_13) 16:49	07:45 17:41	06:51 19:36	06:40 20:27	05:35 21:13	04:50 21:27	04:47 20:55	05:23 19:53	06:13 18:43	07:03 16:37	06:57 15:56	08:43 (G_II_13)
2	08:12 16:02	08:57 (G_II_13) 16:51	07:43 17:43	06:49 19:37	05:33 20:29	04:49 21:14	04:47 21:27	05:25 20:53	06:15 19:51	07:04 18:41	06:59 16:35	07:50 15:55	08:43 (G_II_13)
3	08:12 16:04	08:58 (G_II_13) 16:53	07:42 17:45	06:47 19:39	05:31 20:30	04:48 21:15	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:00 16:33	07:51 15:55	08:43 (G_II_13)
4	08:12 16:05	08:58 (G_II_13) 16:55	07:40 17:47	06:45 19:41	05:30 20:32	04:47 21:16	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:52 15:54	08:44 (G_II_13)
5	08:11 16:06	08:58 (G_II_13) 16:57	07:39 17:49	06:43 19:43	05:28 20:34	04:47 21:17	04:50 21:26	05:30 20:48	06:20 19:44	07:09 18:34	07:04 16:29	07:54 15:53	08:44 (G_II_13)
6	08:11 16:07	08:59 (G_II_13) 16:59	07:37 17:50	06:40 19:44	05:26 20:35	04:46 21:18	04:50 21:25	05:31 20:46	06:22 19:41	07:11 18:31	07:06 16:27	07:55 15:53	08:45 (G_II_13)
7	08:11 16:08	08:59 (G_II_13) 17:01	07:35 17:52	06:38 19:46	05:24 20:37	04:45 21:19	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:08 16:26	07:56 15:53	08:45 (G_II_13)
8	08:10 16:10	09:00 (G_II_13) 17:03	07:33 17:54	06:36 19:48	05:22 20:39	04:45 21:20	04:52 21:24	05:34 20:43	06:25 19:37	07:15 18:27	07:09 16:24	07:57 15:52	08:46 (G_II_13)
9	08:10 16:11	09:00 (G_II_13) 17:04	07:32 17:56	06:34 19:49	05:22 20:40	04:44 21:21	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:11 16:22	07:59 15:52	08:47 (G_II_13)
10	08:09 16:13	09:00 (G_II_13) 17:06	07:30 17:58	06:31 19:51	05:19 20:42	04:44 21:22	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:13 16:21	08:00 15:52	08:47 (G_II_13)
11	08:09 16:14	09:01 (G_II_13) 17:08	07:28 17:59	06:29 19:53	05:17 20:43	04:43 21:23	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:15 16:19	08:01 15:52	08:48 (G_II_13)
12	08:08 16:15	09:02 (G_II_13) 17:10	07:26 18:01	06:27 19:55	05:15 20:45	04:43 21:23	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:17 16:18	08:02 15:51	08:48 (G_II_13)
13	08:07 16:17	09:02 (G_II_13) 17:12	07:24 18:03	06:24 19:56	05:14 20:47	04:43 21:24	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:18 16:16	08:03 15:51	08:49 (G_II_13)
14	08:07 16:18	09:03 (G_II_13) 17:14	07:22 18:05	06:22 19:58	05:12 20:48	04:43 21:25	04:59 21:19	05:44 20:31	06:35 19:23	07:25 18:13	07:20 16:15	08:04 15:51	08:49 (G_II_13)
15	08:06 16:20	09:03 (G_II_13) 17:16	07:20 18:06	06:20 20:00	05:11 20:50	04:42 21:25	05:00 21:18	05:46 20:29	06:36 19:20	07:27 18:11	07:22 16:13	08:05 15:51	08:50 (G_II_13)
16	08:05 16:22	09:04 (G_II_13) 17:17	07:18 18:08	06:18 20:01	05:09 20:51	04:42 21:26	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:24 16:12	08:06 15:52	08:51 (G_II_13)
17	08:04 16:23	09:05 (G_II_13) 17:19	07:16 18:10	06:15 20:03	05:08 20:53	04:42 21:26	05:02 21:16	05:49 20:25	06:40 19:16	07:30 18:07	07:25 16:10	08:06 15:52	08:51 (G_II_13)
18	08:03 16:25	09:06 (G_II_13) 17:21	07:14 18:12	06:13 20:05	05:06 20:54	04:42 21:27	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	07:27 16:09	08:07 15:52	08:51 (G_II_13)
19	08:02 16:26	09:07 (G_II_13) 17:23	07:12 18:13	06:11 20:07	05:05 20:56	04:42 21:27	05:05 21:14	05:52 20:21	06:43 19:11	07:34 18:03	07:29 16:08	08:08 15:52	08:52 (G_II_13)
20	08:01 16:28	09:08 (G_II_13) 17:25	07:10 18:15	06:08 20:08	05:03 20:57	04:42 21:27	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:01	07:31 16:07	08:09 15:53	08:52 (G_II_13)
21	08:00 16:30	09:09 (G_II_13) 17:27	07:08 18:17	06:06 20:10	05:02 20:59	04:42 21:27	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 16:05	08:09 15:53	08:53 (G_II_13)
22	07:59 16:32	09:10 (G_II_13) 17:29	07:06 18:19	06:04 20:12	05:01 21:00	04:43 21:28	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:34 16:04	08:10 15:53	08:53 (G_II_13)
23	07:58 16:33	09:11 (G_II_13) 17:30	07:04 18:20	06:01 20:13	05:00 21:02	04:43 21:28	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	07:36 16:03	08:11 15:54	08:54 (G_II_13)
24	07:56 16:35	09:12 (G_II_13) 17:32	07:02 18:22	06:00 20:15	05:00 21:03	04:43 21:28	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 16:02	08:12 15:55	08:54 (G_II_13)
25	07:55 16:37	09:13 (G_II_13) 17:34	07:00 18:24	05:57 20:17	05:00 21:04	04:43 21:28	05:13 21:06	06:02 20:08	06:53 18:57	07:44 17:50	07:39 16:01	08:13 15:55	08:55 (G_II_13)
26	07:54 16:39	09:14 (G_II_13) 17:36	06:58 18:25	05:54 20:19	05:00 21:06	04:43 21:28	05:14 21:04	06:04 20:06	06:54 18:55	07:45 17:48	07:40 16:00	08:14 15:56	08:56 (G_II_13)
27	07:52 16:40	09:15 (G_II_13) 17:38	06:56 18:27	05:52 20:20	05:00 21:07	04:43 21:28	05:16 21:03	06:05 20:04	06:56 18:52	07:46 17:46	07:42 16:00	08:15 15:57	08:57 (G_II_13)
28	07:51 16:42	09:16 (G_II_13) 17:40	06:54 18:29	05:50 20:22	05:00 21:08	04:43 21:28	05:17 21:01	06:07 20:02	06:58 18:50	07:47 17:44	07:44 16:00	08:16 15:58	08:58 (G_II_13)
29	07:50 16:44	09:17 (G_II_13) 17:42	06:53 18:31	05:49 20:24	05:00 21:10	04:43 21:28	05:19 21:00	06:08 20:00	06:59 18:48	07:48 17:42	07:45 16:00	08:17 15:59	08:59 (G_II_13)
30	07:48 16:46	09:18 (G_II_13) 17:44	06:52 18:33	05:48 20:26	05:00 21:12	04:43 21:29	05:20 21:02	06:10 20:00	07:01 18:46	07:49 17:41	07:46 16:01	08:18 15:59	08:59 (G_II_13)
31	07:47 16:48	09:19 (G_II_13) 17:46	06:51 18:34	05:47 20:28	05:00 21:14	04:43 21:30	05:21 21:04	06:12 20:00	07:02 18:48	07:50 17:40	07:47 16:02	08:19 15:59	08:59 (G_II_13)
Sonnenscheinstunden													258
astr.max.mögl.Beschattung													444

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 Layout GIII_33 Schattenrezeptor: IO 03 - Karras, Dorfstraße 5
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	08:12	08:59 (G.II_13)	07:45	06:51	06:40	05:35	04:50	04:47	05:23	06:13	07:03	06:57	07:48	08:45 (G.II_13)	
	16:01	23 09:22 (G.II_13)	16:49	17:41	19:36	20:27	21:13	21:27	20:55	19:53	18:43	16:37	15:56	22 09:07 (G.II_13)	
2	08:12	08:59 (G.II_13)	07:43	06:49	06:38	05:33	04:49	04:47	05:25	06:15	07:04	06:59	07:50	08:46 (G.II_13)	
	16:02	22 09:21 (G.II_13)	16:51	17:43	19:37	20:29	21:14	21:27	20:53	19:51	18:41	16:35	15:55	22 09:08 (G.II_13)	
3	08:12	09:00 (G.II_13)	07:42	06:47	06:36	05:31	04:48	04:48	05:26	06:17	07:06	07:00	07:51	08:45 (G.II_13)	
	16:04	22 09:22 (G.II_13)	16:53	17:45	19:39	20:30	21:15	21:26	20:52	19:48	18:38	16:33	15:55	23 09:08 (G.II_13)	
4	08:12	09:00 (G.II_13)	07:40	06:45	06:34	05:30	04:47	04:49	05:28	06:18	07:08	07:02	07:52	08:46 (G.II_13)	
	16:05	23 09:23 (G.II_13)	16:55	17:47	19:41	20:32	21:16	21:26	20:50	19:46	18:36	16:31	15:54	23 09:09 (G.II_13)	
5	08:11	09:00 (G.II_13)	07:39	06:43	06:31	05:28	04:47	04:50	05:30	06:20	07:09	07:04	07:54	08:46 (G.II_13)	
	16:06	23 09:23 (G.II_13)	16:57	17:49	19:43	20:34	21:17	21:26	20:48	19:44	18:34	16:29	15:53	23 09:09 (G.II_13)	
6	08:11	09:01 (G.II_13)	07:37	06:40	06:29	05:26	04:46	04:50	05:31	06:22	07:11	07:06	07:55	08:47 (G.II_13)	
	16:07	23 09:24 (G.II_13)	16:59	17:50	19:44	20:35	21:18	21:25	20:46	19:41	18:31	16:27	15:53	23 09:10 (G.II_13)	
7	08:11	09:01 (G.II_13)	07:35	06:38	06:27	05:24	04:45	04:51	05:33	06:23	07:13	07:08	07:56	08:47 (G.II_13)	
	16:08	23 09:24 (G.II_13)	17:01	17:52	19:46	20:37	21:19	21:24	20:45	19:39	18:29	16:26	15:53	23 09:10 (G.II_13)	
8	08:10	09:02 (G.II_13)	07:33	06:36	06:24	05:22	04:45	04:52	05:34	06:25	07:15	07:09	07:57	08:47 (G.II_13)	
	16:10	23 09:25 (G.II_13)	17:03	17:54	19:48	20:39	21:20	21:24	20:43	19:37	18:27	16:24	15:52	23 09:10 (G.II_13)	
9	08:10	09:02 (G.II_13)	07:32	06:34	06:22	05:21	04:44	04:53	05:36	06:26	07:16	07:11	07:59	08:49 (G.II_13)	
	16:11	23 09:25 (G.II_13)	17:04	17:56	19:49	20:40	21:21	21:23	20:41	19:34	18:25	16:22	15:52	22 09:11 (G.II_13)	
10	08:09	09:03 (G.II_13)	07:30	06:31	06:20	05:19	04:44	04:54	05:37	06:28	07:18	07:13	08:00	08:49 (G.II_13)	
	16:13	22 09:25 (G.II_13)	17:06	17:58	19:51	20:42	21:22	21:22	20:39	19:32	18:22	16:21	15:52	22 09:11 (G.II_13)	
11	08:09	09:03 (G.II_13)	07:28	06:29	06:18	05:17	04:43	04:55	05:39	06:30	07:20	07:15	08:01	08:49 (G.II_13)	
	16:14	22 09:25 (G.II_13)	17:08	17:59	19:53	20:43	21:23	21:22	20:37	19:30	18:20	16:19	15:52	23 09:12 (G.II_13)	
12	08:08	09:04 (G.II_13)	07:26	06:27	06:15	05:15	04:43	04:56	05:41	06:31	07:21	07:17	08:02	08:50 (G.II_13)	
	16:15	22 09:26 (G.II_13)	17:10	18:01	19:55	20:45	21:23	21:21	20:35	19:27	18:18	16:18	15:51	22 09:12 (G.II_13)	
13	08:07	09:05 (G.II_13)	07:24	06:24	06:13	05:14	04:43	04:57	05:42	06:33	07:23	07:18	08:03	08:50 (G.II_13)	
	16:17	21 09:26 (G.II_13)	17:12	18:03	19:56	20:47	21:24	21:20	20:33	19:25	18:16	16:16	15:51	22 09:12 (G.II_13)	
14	08:07	09:06 (G.II_13)	07:22	06:22	06:11	05:12	04:43	04:59	05:44	06:35	07:25	07:20	08:04	08:51 (G.II_13)	
	16:18	20 09:26 (G.II_13)	17:14	18:05	19:58	20:48	21:25	21:19	20:31	19:23	18:13	16:15	15:51	22 09:13 (G.II_13)	
15	08:06	09:06 (G.II_13)	07:20	06:20	06:09	05:11	04:42	05:00	05:46	06:36	07:27	07:22	08:05	08:51 (G.II_13)	
	16:20	20 09:26 (G.II_13)	17:16	18:06	20:00	20:50	21:25	21:18	20:29	19:20	18:11	16:13	15:51	22 09:13 (G.II_13)	
16	08:05	09:07 (G.II_13)	07:18	06:18	06:06	05:09	04:42	05:01	05:47	06:38	07:28	07:24	08:06	08:52 (G.II_13)	
	16:22	18 09:25 (G.II_13)	17:17	18:08	20:01	20:51	21:26	21:17	20:27	19:18	18:09	16:12	15:52	22 09:14 (G.II_13)	
17	08:04	09:08 (G.II_13)	07:16	06:15	06:04	05:08	04:42	05:02	05:49	06:40	07:30	07:25	08:06	08:52 (G.II_13)	
	16:23	17 09:25 (G.II_13)	17:19	18:10	20:03	20:53	21:26	21:16	20:25	19:16	18:07	16:10	15:52	21 09:13 (G.II_13)	
18	08:03	09:10 (G.II_13)	07:14	06:13	06:02	05:06	04:42	05:03	05:50	06:41	07:32	07:27	08:07	08:53 (G.II_13)	
	16:25	15 09:25 (G.II_13)	17:21	18:12	20:05	20:54	21:27	21:15	20:23	19:13	18:05	16:09	15:52	21 09:14 (G.II_13)	
19	08:02	09:10 (G.II_13)	07:12	06:11	06:00	05:05	04:42	05:05	05:52	06:43	07:34	07:29	08:08	08:53 (G.II_13)	
	16:26	13 09:23 (G.II_13)	17:23	18:13	20:07	20:56	21:27	21:14	20:21	19:11	18:03	16:08	15:52	22 09:15 (G.II_13)	
20	08:01	09:13 (G.II_13)	07:10	06:08	05:58	05:03	04:42	05:06	05:54	06:44	07:35	07:31	08:09	08:53 (G.II_13)	
	16:28	9 09:22 (G.II_13)	17:25	18:15	20:08	20:57	21:27	21:12	20:19	19:09	18:01	16:07	15:53	22 09:15 (G.II_13)	
21	08:00	09:17 (G.II_13)	07:08	06:06	05:56	05:02	04:42	05:07	05:55	06:46	07:37	07:32	08:09	08:54 (G.II_13)	
	16:30	2 09:19 (G.II_13)	17:27	18:17	20:10	20:59	21:27	21:11	20:17	19:06	17:58	16:05	2 08:52 (G.II_13)	22 09:16 (G.II_13)	
22	07:59		07:06	06:04	05:54	05:01	04:43	05:09	05:57	06:48	07:39	07:34	08:09	08:54 (G.II_13)	
	16:32		17:29	18:19	20:12	21:00	21:28	21:10	20:15	19:04	17:56	16:04	9 08:58 (G.II_13)	22 09:16 (G.II_13)	
23	07:58		07:04	06:01	05:51	04:59	04:43	05:10	05:59	06:49	07:41	07:36	08:09	08:55 (G.II_13)	
	16:33		17:30	18:20	20:13	21:02	21:28	21:09	20:13	19:02	17:54	16:03	13 09:00 (G.II_13)	22 09:17 (G.II_13)	
24	07:56		07:02	05:59	05:49	04:58	04:43	05:11	06:00	06:51	07:42	07:37	08:07	08:55 (G.II_13)	
	16:35		17:32	18:22	20:15	21:03	21:28	21:07	20:10	18:59	17:52	16:02	15 09:02 (G.II_13)	22 09:17 (G.II_13)	
25	07:55		07:00	05:57	05:47	04:57	04:44	05:13	06:02	06:53	07:44	07:39	08:06	08:57 (G.II_13)	
	16:37		17:34	18:24	20:17	21:04	21:28	21:06	20:08	18:57	17:50	16:01	17 09:03 (G.II_13)	21 09:18 (G.II_13)	
26	07:54		06:58	05:54	05:45	04:56	04:44	05:14	06:04	06:54	07:45	07:40	08:05	08:57 (G.II_13)	
	16:39		17:36	18:25	20:19	21:06	21:28	21:04	20:06	18:55	17:48	16:00	18 09:03 (G.II_13)	21 09:18 (G.II_13)	
27	07:52		06:56	05:52	05:43	04:55	04:44	05:16	06:05	06:56	07:46	07:42	08:05	08:57 (G.II_13)	
	16:40		17:38	18:27	20:20	21:07	21:28	21:03	20:04	18:52	17:46	15:59	20 09:05 (G.II_13)	22 09:19 (G.II_13)	
28	07:51		06:54	05:50	05:41	04:54	04:45	05:17	06:07	06:58	07:48	07:44	08:06	08:57 (G.II_13)	
	16:42		17:40	18:29	20:22	21:08	21:28	21:01	20:02	18:50	17:44	15:58	20 09:06 (G.II_13)	22 09:19 (G.II_13)	
29	07:50			06:47	05:39	04:52	04:45	05:19	06:08	06:59	07:49	07:45	08:05	08:58 (G.II_13)	
	16:44			19:31	20:24	21:10	21:28	21:00	20:00	18:48	17:42	15:57	21 09:06 (G.II_13)	22 09:20 (G.II_13)	
30	07:48			06:45	05:37	04:52	04:46	05:20	06:10	07:01	07:51	07:47	08:05	08:58 (G.II_13)	
	16:46			19:32	20:25	21:11	21:27	20:58	19:57	18:45	17:40	15:57	22 09:07 (G.II_13)	22 09:20 (G.II_13)	
31	07:47			06:43		04:51		05:22	06:12		07:02	06:55		08:59 (G.II_13)	
	16:48			19:34		21:12		20:57	19:55		16:38		16:00	22 09:21 (G.II_13)	
Sonnenscheinstunden		258		277	367	416	486	500	503	454	381	331	266	157	685
astr.max.mögl.Beschattung		406													

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 Layout GIII_33 Schattenrezeptor: IO 04 - Karras, Dorfstraße 4
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	08:12	09:04 (G_II_13)	07:45	06:51	06:40	05:35	04:50	04:47	05:23	06:13	07:03	06:57	07:48	08:52 (G_II_13)
2	16:07	22 09:26 (G_II_13)	16:49	17:41	19:36	20:27	21:13	21:27	20:55	19:53	18:43	16:37	15:56	18 09:10 (G_II_13)
3	08:12	09:04 (G_II_13)	07:43	06:49	06:38	05:33	04:47	04:47	05:25	06:15	07:04	06:59	07:50	08:52 (G_II_13)
4	16:02	22 09:26 (G_II_13)	16:51	17:43	19:37	20:29	21:14	21:27	20:53	19:51	18:41	16:35	15:55	19 09:11 (G_II_13)
5	08:12	09:05 (G_II_13)	07:42	06:47	06:36	05:31	04:48	04:48	05:26	06:17	07:06	07:00	07:51	08:52 (G_II_13)
6	16:04	22 09:27 (G_II_13)	16:53	17:45	19:39	20:30	21:15	21:26	20:52	19:48	18:38	16:33	15:55	19 09:11 (G_II_13)
7	08:12	09:06 (G_II_13)	07:40	06:45	06:34	05:30	04:47	04:49	05:28	06:18	07:08	07:02	07:52	08:52 (G_II_13)
8	16:05	21 09:27 (G_II_13)	16:55	17:47	19:41	20:32	21:16	21:26	20:50	19:46	18:36	16:31	15:54	20 09:12 (G_II_13)
9	08:11	09:06 (G_II_13)	07:39	06:43	06:31	05:28	04:47	04:50	05:30	06:20	07:09	07:04	07:54	08:52 (G_II_13)
10	16:06	21 09:27 (G_II_13)	16:57	17:49	19:43	20:34	21:17	21:26	20:48	19:44	18:34	16:29	15:53	21 09:13 (G_II_13)
11	08:11	09:07 (G_II_13)	07:37	06:40	06:29	05:26	04:46	04:50	05:31	06:22	07:11	07:06	07:55	08:53 (G_II_13)
12	16:07	21 09:28 (G_II_13)	16:59	17:50	19:44	20:35	21:18	21:25	20:47	19:41	18:31	16:27	15:53	21 09:14 (G_II_13)
13	08:11	09:07 (G_II_13)	07:35	06:38	06:27	05:24	04:45	04:51	05:33	06:23	07:13	07:08	07:56	08:53 (G_II_13)
14	16:08	21 09:28 (G_II_13)	17:01	17:52	19:46	20:37	21:19	21:24	20:45	19:39	18:29	16:26	15:53	21 09:14 (G_II_13)
15	08:10	09:08 (G_II_13)	07:33	06:36	06:24	05:22	04:45	04:52	05:34	06:25	07:15	07:09	07:57	08:53 (G_II_13)
16	16:10	20 09:28 (G_II_13)	17:03	17:54	19:48	20:39	21:20	21:24	20:43	19:37	18:27	16:24	15:52	21 09:14 (G_II_13)
17	08:10	09:09 (G_II_13)	07:32	06:34	06:22	05:21	04:44	04:53	05:36	06:26	07:16	07:11	07:59	08:54 (G_II_13)
18	16:11	19 09:28 (G_II_13)	17:04	17:56	19:49	20:40	21:21	21:23	20:41	19:34	18:25	16:22	15:52	22 09:16 (G_II_13)
19	08:09	09:09 (G_II_13)	07:30	06:31	06:20	05:19	04:44	04:54	05:37	06:28	07:18	07:13	08:00	08:54 (G_II_13)
20	16:13	19 09:28 (G_II_13)	17:06	17:58	19:51	20:42	21:22	21:22	20:39	19:32	18:22	16:21	15:52	22 09:16 (G_II_13)
21	08:09	09:10 (G_II_13)	07:28	06:29	06:18	05:17	04:43	04:55	05:39	06:30	07:20	07:15	08:01	08:54 (G_II_13)
22	16:14	18 09:28 (G_II_13)	17:08	17:59	19:53	20:44	21:23	21:22	20:37	19:30	18:20	16:19	15:52	22 09:16 (G_II_13)
23	08:08	09:12 (G_II_13)	07:26	06:27	06:15	05:15	04:43	04:56	05:41	06:31	07:21	07:17	08:02	08:55 (G_II_13)
24	16:15	16 09:28 (G_II_13)	17:10	18:01	19:55	20:45	21:23	21:21	20:35	19:27	18:18	16:18	15:51	22 09:17 (G_II_13)
25	08:07	09:13 (G_II_13)	07:24	06:24	06:13	05:14	04:43	04:57	05:42	06:33	07:23	07:18	08:03	08:55 (G_II_13)
26	16:17	15 09:28 (G_II_13)	17:12	18:03	19:56	20:47	21:24	21:20	20:33	19:25	18:16	16:16	15:51	22 09:17 (G_II_13)
27	08:07	09:14 (G_II_13)	07:22	06:22	06:11	05:12	04:43	04:59	05:44	06:35	07:25	07:20	08:04	08:56 (G_II_13)
28	16:18	13 09:27 (G_II_13)	17:14	18:05	19:58	20:48	21:25	21:19	20:31	19:23	18:13	16:15	15:51	22 09:18 (G_II_13)
29	08:06	09:15 (G_II_13)	07:20	06:20	06:09	05:10	04:42	05:00	05:46	06:36	07:27	07:22	08:05	08:56 (G_II_13)
30	16:20	11 09:26 (G_II_13)	17:16	18:06	20:00	20:50	21:25	21:18	20:29	19:20	18:11	16:13	15:51	22 09:18 (G_II_13)
31	08:05	09:17 (G_II_13)	07:18	06:18	06:06	05:09	04:42	05:01	05:47	06:38	07:28	07:24	08:06	08:57 (G_II_13)
32	16:22	8 09:25 (G_II_13)	17:17	18:08	20:01	20:51	21:26	21:17	20:27	19:18	18:09	16:12	15:52	22 09:19 (G_II_13)
33	08:04		07:16	06:15	06:04	05:08	04:42	05:02	05:49	06:40	07:30	07:25	08:06	08:58 (G_II_13)
34	16:23		17:19	18:10	20:03	20:53	21:26	21:16	20:25	19:16	18:07	16:10	15:52	23 09:19 (G_II_13)
35	08:03		07:14	06:13	06:02	05:06	04:42	05:03	05:50	06:41	07:32	07:27	08:07	08:57 (G_II_13)
36	16:25		17:21	18:12	20:05	20:54	21:27	21:15	20:23	19:13	18:05	16:09	15:52	22 09:19 (G_II_13)
37	08:02		07:12	06:11	06:00	05:05	04:42	05:05	05:52	06:43	07:34	07:29	08:08	08:58 (G_II_13)
38	16:26		17:23	18:13	20:07	20:56	21:27	21:14	20:21	19:11	18:03	16:08	15:52	22 09:20 (G_II_13)
39	08:01		07:10	06:08	05:58	05:03	04:42	05:06	05:54	06:44	07:35	07:31	08:09	08:58 (G_II_13)
40	16:28		17:25	18:15	20:08	20:57	21:27	21:12	20:19	19:09	18:01	16:07	15:53	22 09:20 (G_II_13)
41	08:00		07:08	06:06	05:56	05:02	04:42	05:07	05:55	06:46	07:37	07:32	08:09	08:59 (G_II_13)
42	16:30		17:27	18:17	20:10	20:59	21:27	21:11	20:17	19:06	17:58	16:05	15:53	22 09:21 (G_II_13)
43	07:59		07:06	06:04	05:54	05:01	04:43	05:09	05:57	06:48	07:39	07:34	08:10	08:59 (G_II_13)
44	16:32		17:29	18:19	20:12	21:00	21:28	21:10	20:15	19:04	17:56	16:04	15:53	22 09:21 (G_II_13)
45	07:58		07:04	06:01	05:51	04:59	04:43	05:10	05:59	06:49	07:41	07:36	08:10	09:00 (G_II_13)
46	16:33		17:30	18:20	20:13	21:02	21:28	21:09	20:13	19:02	17:54	16:03	15:54	22 09:22 (G_II_13)
47	07:56		07:02	05:59	05:49	04:58	04:43	05:11	06:00	06:51	07:42	07:37	08:11	09:00 (G_II_13)
48	16:35		17:32	18:22	20:15	21:03	21:28	21:07	20:10	18:59	17:52	16:02	15:55	22 09:22 (G_II_13)
49	07:55		07:00	05:57	05:47	04:57	04:44	05:13	06:02	06:53	07:44	07:39	08:11	09:01 (G_II_13)
50	16:37		17:34	18:24	20:17	21:04	21:28	21:06	20:08	18:57	16:50	16:01	15:55	22 09:23 (G_II_13)
51	07:54		06:58	05:54	05:45	04:56	04:44	05:14	06:04	06:54	06:46	07:40	08:11	09:01 (G_II_13)
52	16:39		17:36	18:25	20:19	21:06	21:28	21:04	20:06	18:55	16:48	16:00	8 09:03 (G_II_13)	15:56 22 09:23 (G_II_13)
53	07:52		06:56	05:52	05:43	04:55	04:44	05:16	06:06	06:56	06:48	07:42	08:54 (G_II_13)	08:12 22 09:24 (G_II_13)
54	16:40		17:38	18:27	20:20	21:07	21:28	21:03	20:04	18:52	16:46	15:59	11 09:05 (G_II_13)	15:57 22 09:24 (G_II_13)
55	07:51		06:54	05:50	05:41	04:54	04:45	05:17	06:07	06:58	06:50	07:44	08:54 (G_II_13)	08:12 22 09:24 (G_II_13)
56	16:42		17:40	18:29	20:22	21:08	21:28	21:01	20:02	18:50	16:44	15:58	13 09:07 (G_II_13)	15:57 22 09:24 (G_II_13)
57	07:50			06:47	05:39	04:52	04:45	05:19	06:08	06:59	06:51	07:45	08:53 (G_II_13)	08:12 22 09:25 (G_II_13)
58	16:44			19:31	20:24	21:10	21:28	21:00	20:00	18:48	16:42	15:57	15 09:08 (G_II_13)	15:58 23 09:25 (G_II_13)
59	07:48			06:45	05:37	04:52	04:46	05:20	06:10	07:01	06:53	07:47	08:53 (G_II_13)	08:12 23 09:25 (G_II_13)
60	16:46			19:32	20:25	21:11	21:27	20:58	19:57	18:45	16:40	15:57	16 09:09 (G_II_13)	15:59 22 09:25 (G_II_13)
61	07:47			06:43		04:51		05:22	06:12		06:55		08:12	09:04 (G_II_13)
62	16:48			19:34		21:12		20:57	19:55		16:38		16:00	22 09:26 (G_II_13)
Sonnenscheinstunden	258		277	367	416	486	500	503	454	381	331	266	243	
astr.max.mögl.Beschattung	289										63		668	

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 Layout GIII_33 Schattenrezeptor: IO 05 - Karras, Dorfstraße 2
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	08:12	09:10 (G_II_13)	07:45	06:51	06:40	05:35	04:50	04:47	05:23	06:13	07:03	06:57	07:48	09:00 (G_II_13)
2	08:12	09:10 (G_II_13)	07:43	06:49	06:38	05:33	04:49	04:47	05:25	06:15	07:04	06:59	07:50	09:11 (G_II_13)
3	08:12	09:11 (G_II_13)	07:42	06:47	06:36	05:31	04:48	04:48	05:26	06:17	07:06	07:00	07:51	09:13 (G_II_13)
4	08:12	09:12 (G_II_13)	07:40	06:45	06:34	05:30	04:47	04:49	05:28	06:18	07:08	07:02	07:52	09:15 (G_II_13)
5	08:11	09:12 (G_II_13)	07:39	06:43	06:31	05:28	04:47	04:50	05:30	06:20	07:09	07:04	07:54	09:17 (G_II_13)
6	08:11	09:13 (G_II_13)	07:37	06:40	06:29	05:26	04:46	04:50	05:31	06:22	07:11	07:06	07:55	09:19 (G_II_13)
7	08:11	09:13 (G_II_13)	07:35	06:38	06:27	05:24	04:45	04:51	05:33	06:23	07:13	07:08	07:56	09:21 (G_II_13)
8	08:10	09:15 (G_II_13)	07:33	06:36	06:24	05:22	04:45	04:52	05:34	06:25	07:15	07:09	07:57	09:23 (G_II_13)
9	08:10	09:16 (G_II_13)	07:32	06:34	06:22	05:21	04:44	04:53	05:36	06:26	07:16	07:11	07:59	09:25 (G_II_13)
10	08:09	09:17 (G_II_13)	07:30	06:31	06:20	05:19	04:44	04:54	05:37	06:28	07:18	07:13	08:00	09:27 (G_II_13)
11	08:09	09:18 (G_II_13)	07:28	06:29	06:18	05:17	04:43	04:55	05:39	06:30	07:20	07:15	08:01	09:29 (G_II_13)
12	08:08	09:20 (G_II_13)	07:26	06:27	06:15	05:15	04:43	04:56	05:41	06:31	07:21	07:17	08:02	09:31 (G_II_13)
13	08:07	09:23 (G_II_13)	07:24	06:24	06:13	05:14	04:43	04:57	05:42	06:33	07:23	07:18	08:03	09:33 (G_II_13)
14	08:07	09:26 (G_II_13)	07:22	06:22	06:11	05:12	04:43	04:59	05:44	06:35	07:25	07:20	08:04	09:35 (G_II_13)
15	08:06	09:29 (G_II_13)	07:20	06:20	06:09	05:11	04:42	05:00	05:46	06:36	07:27	07:22	08:05	09:37 (G_II_13)
16	08:05	09:31 (G_II_13)	07:18	06:18	06:06	05:09	04:42	05:01	05:47	06:38	07:28	07:24	08:06	09:39 (G_II_13)
17	08:04	09:34 (G_II_13)	07:16	06:15	06:04	05:08	04:42	05:02	05:49	06:40	07:30	07:25	08:06	09:41 (G_II_13)
18	08:03	09:37 (G_II_13)	07:14	06:13	06:02	05:06	04:42	05:03	05:50	06:41	07:32	07:27	08:07	09:43 (G_II_13)
19	08:02	09:40 (G_II_13)	07:12	06:11	06:00	05:05	04:42	05:05	05:52	06:43	07:34	07:29	08:08	09:45 (G_II_13)
20	08:01	09:43 (G_II_13)	07:10	06:09	05:58	05:03	04:42	05:06	05:54	06:44	07:35	07:31	08:09	09:47 (G_II_13)
21	08:00	09:46 (G_II_13)	07:08	06:06	05:56	05:02	04:42	05:07	05:55	06:46	07:37	07:32	08:09	09:49 (G_II_13)
22	07:59	09:49 (G_II_13)	07:06	06:04	05:54	05:01	04:43	05:09	05:57	06:48	07:39	07:34	08:10	09:51 (G_II_13)
23	07:58	09:52 (G_II_13)	07:04	06:01	05:51	04:59	04:43	05:10	05:59	06:49	07:41	07:36	08:10	09:53 (G_II_13)
24	07:56	09:55 (G_II_13)	07:02	05:59	05:49	04:58	04:43	05:11	06:00	06:51	07:42	07:37	08:11	09:55 (G_II_13)
25	07:55	09:58 (G_II_13)	07:00	05:57	05:47	04:57	04:44	05:13	06:02	06:53	07:44	07:39	08:11	09:57 (G_II_13)
26	07:54	09:59 (G_II_13)	06:58	05:54	05:45	04:56	04:44	05:14	06:04	06:54	07:45	07:40	08:11	09:59 (G_II_13)
27	07:52	09:59 (G_II_13)	06:56	05:52	05:43	04:55	04:44	05:16	06:05	06:56	07:46	07:42	08:12	10:01 (G_II_13)
28	07:51	09:59 (G_II_13)	06:54	05:50	05:41	04:54	04:45	05:17	06:07	06:58	07:47	07:44	08:12	10:03 (G_II_13)
29	07:50	09:59 (G_II_13)	06:52	05:48	05:39	04:52	04:45	05:19	06:08	06:59	07:48	07:45	08:12	10:05 (G_II_13)
30	07:48	09:59 (G_II_13)	06:50	05:46	05:37	04:50	04:46	05:20	06:10	07:01	07:49	07:47	08:12	10:07 (G_II_13)
31	07:47	09:59 (G_II_13)	06:48	05:44	05:35	04:49	04:47	05:22	06:12	07:03	07:50	07:48	08:12	10:09 (G_II_13)
Sonnenscheinstunden	258	277	367	416	486	500	503	454	381	331	266	243	600	
astr.max.mögl.Beschattung	196										11			

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 Layout GIII_33 Schattenrezeptor: IO 06 - Karras, Dorfstraße 2a
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	08:12 16:01	09:10 (G_II_13) 16:49	07:45 17:41	06:51 19:36	06:40 20:27	05:35 21:13	04:50 21:27	05:23 20:55	06:13 19:53	07:03 18:43	06:57 16:37	07:48 15:56
2	08:12 16:02	09:10 (G_II_13) 16:51	07:43 17:43	06:49 19:37	05:33 20:29	04:49 21:14	04:47 21:27	05:25 20:53	06:15 19:51	07:04 18:41	06:59 16:35	07:50 15:55
3	08:12 16:04	09:10 (G_II_13) 16:53	07:42 17:45	06:47 19:39	05:31 20:30	04:48 21:15	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:00 16:33	07:51 15:55
4	08:12 16:05	09:12 (G_II_13) 16:55	07:40 17:47	06:45 19:41	05:30 20:32	04:47 21:16	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:52 15:54
5	08:11 16:06	09:12 (G_II_13) 16:57	07:39 17:49	06:43 19:43	05:28 20:34	04:47 21:17	04:50 21:26	05:30 20:48	06:20 19:44	07:09 18:34	07:04 16:29	07:54 15:53
6	08:11 16:07	09:13 (G_II_13) 16:59	07:37 17:50	06:40 19:44	05:26 20:35	04:46 21:18	04:50 21:25	05:31 20:47	06:22 19:41	07:11 18:31	07:06 16:27	07:55 15:53
7	08:11 16:08	09:13 (G_II_13) 17:01	07:35 17:52	06:38 19:46	05:24 20:37	04:45 21:19	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:08 16:26	07:56 15:53
8	08:10 16:10	09:15 (G_II_13) 17:03	07:33 17:54	06:36 19:48	05:22 20:39	04:45 21:20	04:52 21:24	05:34 20:43	06:25 19:37	07:15 18:27	07:09 16:24	07:57 15:52
9	08:10 16:11	09:16 (G_II_13) 17:04	07:32 17:56	06:34 19:49	05:21 20:40	04:44 21:21	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:11 16:22	07:59 15:52
10	08:09 16:13	09:17 (G_II_13) 17:06	07:30 17:58	06:31 19:51	05:19 20:42	04:44 21:22	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:13 16:21	08:00 15:52
11	08:09 16:14	09:18 (G_II_13) 17:08	07:28 17:59	06:29 19:53	05:17 20:44	04:43 21:23	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:15 16:19	08:01 15:52
12	08:08 16:15	09:21 (G_II_13) 17:10	07:26 18:01	06:27 19:55	05:15 20:45	04:43 21:23	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:17 16:18	08:02 15:51
13	08:07 16:17	09:27 (G_II_13) 17:12	07:24 18:03	06:24 19:56	05:14 20:47	04:43 21:24	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:18 16:16	08:03 15:51
14	08:07 16:18	07:22 17:14	06:22 18:05	06:11 19:58	05:12 20:48	04:43 21:25	04:59 21:19	05:44 20:31	06:35 19:23	07:25 18:13	07:20 16:15	08:04 15:51
15	08:06 16:20	07:20 17:16	06:20 18:06	06:09 20:00	05:11 20:50	04:42 21:25	05:00 21:18	05:46 20:29	06:36 19:20	07:27 18:11	07:22 16:13	08:05 15:51
16	08:05 16:22	07:18 17:17	06:18 18:08	06:06 20:01	05:09 20:51	04:42 21:26	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:24 16:12	08:06 15:52
17	08:04 16:23	07:16 17:19	06:15 18:10	06:04 20:03	05:08 20:53	04:42 21:26	05:02 21:16	05:49 20:25	06:40 19:16	07:30 18:07	07:25 16:10	08:06 15:52
18	08:03 16:25	07:14 17:21	06:13 18:12	06:02 20:05	05:06 20:54	04:42 21:27	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	07:27 16:09	08:07 15:52
19	08:02 16:26	07:12 17:23	06:11 18:13	06:00 20:07	05:05 20:56	04:42 21:27	05:05 21:14	05:52 20:21	06:43 19:11	07:34 18:03	07:29 16:08	08:08 15:52
20	08:01 16:28	07:10 17:25	06:08 18:15	05:58 20:08	05:03 20:57	04:42 21:27	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:01	07:31 16:07	08:09 15:53
21	08:00 16:30	07:08 17:27	06:06 18:17	05:56 20:10	05:02 20:59	04:42 21:27	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 16:05	08:09 15:53
22	07:59 16:32	07:06 17:29	06:04 18:19	05:54 20:12	05:01 21:00	04:43 21:28	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:34 16:04	08:10 15:53
23	07:58 16:33	07:04 17:30	06:01 18:20	05:51 20:13	04:59 21:02	04:43 21:28	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	07:36 16:03	08:10 15:54
24	07:56 16:35	07:02 17:32	05:59 18:22	05:49 20:15	04:58 21:03	04:43 21:28	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 16:02	08:11 15:55
25	07:55 16:37	07:00 17:34	05:57 18:24	05:47 20:17	04:57 21:04	04:44 21:28	05:13 21:06	06:02 20:08	06:53 18:57	06:44 17:50	07:39 16:01	08:11 15:55
26	07:54 16:39	06:58 17:36	05:54 18:25	05:45 20:19	04:56 21:06	04:44 21:28	05:14 21:04	06:04 20:06	06:54 18:55	06:46 17:48	07:40 16:00	08:11 15:56
27	07:52 16:40	06:56 17:38	05:52 18:27	05:43 20:20	04:55 21:07	04:44 21:28	05:16 21:03	06:05 20:04	06:56 18:52	06:48 17:46	07:42 15:59	08:12 15:57
28	07:51 16:42	06:54 17:40	05:50 18:29	05:41 20:22	04:54 21:08	04:45 21:28	05:17 21:01	06:07 20:02	06:58 18:50	06:50 17:44	07:44 15:58	08:12 15:57
29	07:50 16:44	06:47 17:40	05:39 18:29	04:52 20:22	04:52 21:08	04:45 21:28	05:19 21:00	06:08 20:00	06:59 18:48	06:51 17:42	07:45 15:57	08:12 15:58
30	07:48 16:46	06:45 17:32	05:37 18:25	04:52 20:25	04:46 21:11	04:46 21:27	05:20 20:58	06:10 19:57	07:01 18:45	06:53 17:40	07:47 15:57	08:12 15:59
31	07:47 16:48	06:43 17:34	05:35 18:24	04:51 20:22	04:51 21:12	04:51 21:27	05:22 20:57	06:12 19:55	06:55 18:40	06:55 17:38	07:48 15:58	08:12 16:00
Sonnenscheinstunden	258	277	367	416	486	500	503	454	381	331	266	243
astr.max.mögl.Beschattung	181									6		580

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GII_33 Schattenrezeptor: IO 07 - Karras, Dorfstraße 1
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	08:12 16:01	09:13 (G.II_13) 16:49	07:45 17:41	06:51 19:36	06:40 20:27	05:35 21:13	04:50 21:27	04:47 20:55	05:23 19:53	06:13 18:43	07:03 16:37	06:57 15:56
2	08:12 16:02	09:13 (G.II_13) 16:51	07:43 17:43	06:38 19:37	05:33 20:29	04:49 21:14	04:47 21:27	05:25 20:53	06:15 19:51	07:04 18:41	06:59 16:35	07:50 15:55
3	08:12 16:04	09:14 (G.II_13) 16:53	07:42 17:45	06:36 19:39	05:31 20:30	04:48 21:15	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:00 16:33	07:51 15:55
4	08:12 16:05	09:15 (G.II_13) 16:55	07:40 17:47	06:45 19:41	05:30 20:32	04:47 21:16	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:52 15:54
5	08:11 16:06	09:15 (G.II_13) 16:57	07:39 17:49	06:43 19:43	05:28 20:34	04:47 21:17	04:50 21:26	05:30 20:48	06:20 19:44	07:09 18:34	07:04 16:29	07:54 15:53
6	08:11 16:07	09:17 (G.II_13) 16:59	07:37 17:50	06:40 19:44	05:26 20:35	04:46 21:18	04:50 21:25	05:31 20:47	06:22 19:41	07:11 18:31	07:06 16:27	07:55 15:53
7	08:11 16:08	09:18 (G.II_13) 17:01	07:35 17:52	06:38 19:46	05:24 20:37	04:45 21:19	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:08 16:26	07:56 15:53
8	08:10 16:10	09:19 (G.II_13) 17:03	07:33 17:54	06:36 19:48	05:22 20:39	04:45 21:20	04:52 21:24	05:34 20:43	06:25 19:37	07:15 18:27	07:09 16:24	07:57 15:52
9	08:10 16:11	09:21 (G.II_13) 17:04	07:32 17:56	06:34 19:49	05:21 20:40	04:44 21:21	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:11 16:22	07:59 15:52
10	08:09 16:13	09:22 (G.II_13) 17:06	07:30 17:58	06:31 19:51	05:19 20:42	04:44 21:22	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:13 16:21	08:00 15:52
11	08:09 16:14	09:25 (G.II_13) 17:08	07:28 17:59	06:18 19:53	05:17 20:44	04:43 21:23	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:15 16:19	08:01 15:52
12	08:08 16:15	09:26 17:10	07:26 18:01	06:15 19:55	05:15 20:45	04:43 21:23	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:17 16:18	08:02 15:51
13	08:07 16:17	09:27 17:12	07:24 18:03	06:13 19:56	05:14 20:47	04:43 21:24	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:18 16:16	08:03 15:51
14	08:07 16:18	09:28 17:14	07:22 18:05	06:11 19:58	05:12 20:48	04:43 21:25	04:59 21:19	05:44 20:31	06:35 19:23	07:25 18:13	07:20 16:15	08:04 15:51
15	08:06 16:20	09:29 17:16	07:20 18:06	06:09 20:00	05:11 20:50	04:42 21:25	05:00 21:18	05:46 20:29	06:36 19:20	07:27 18:11	07:22 16:13	08:05 15:51
16	08:05 16:22	09:30 17:17	07:18 18:08	06:06 20:01	05:09 20:51	04:42 21:26	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:24 16:12	08:06 15:52
17	08:04 16:23	09:31 17:19	07:16 18:10	06:04 20:03	05:08 20:53	04:42 21:26	05:02 21:16	05:49 20:25	06:40 19:16	07:30 18:07	07:25 16:10	08:06 15:52
18	08:03 16:25	09:32 17:21	07:14 18:12	06:02 20:05	05:06 20:54	04:42 21:27	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	07:27 16:09	08:07 15:52
19	08:02 16:26	09:33 17:23	07:12 18:13	06:00 20:07	05:05 20:56	04:42 21:27	05:05 21:14	05:52 20:21	06:43 19:11	07:34 18:03	07:29 16:08	08:08 15:52
20	08:01 16:28	09:34 17:25	07:10 18:15	06:00 20:08	05:03 20:57	04:42 21:27	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:01	07:31 16:07	08:09 15:53
21	08:00 16:30	09:35 17:27	07:08 18:17	06:00 20:10	05:02 20:59	04:42 21:27	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 16:05	08:09 15:53
22	07:59 16:32	09:36 17:29	07:06 18:19	06:00 20:12	05:01 21:00	04:43 21:28	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:34 16:04	08:10 15:53
23	07:58 16:33	09:37 17:30	07:04 18:20	06:01 20:13	05:01 21:02	04:43 21:28	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	07:36 16:03	08:10 15:54
24	07:56 16:35	09:38 17:32	07:02 18:22	06:00 20:15	05:00 21:03	04:43 21:28	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 16:02	08:11 15:55
25	07:55 16:37	09:39 17:34	07:00 18:24	06:00 20:17	05:00 21:04	04:43 21:28	05:13 21:06	06:02 20:08	06:53 18:57	07:44 17:50	07:39 16:01	08:11 15:55
26	07:54 16:39	09:40 17:36	06:58 18:25	06:00 20:19	05:00 21:06	04:43 21:28	05:14 21:04	06:04 20:06	06:54 18:55	07:45 17:48	07:40 16:00	08:11 15:56
27	07:52 16:40	09:41 17:38	06:56 18:27	06:00 20:20	05:00 21:07	04:43 21:28	05:16 21:03	06:05 20:04	06:56 18:52	07:46 17:46	07:42 15:59	08:12 15:57
28	07:51 16:42	09:42 17:40	06:54 18:29	06:00 20:22	05:00 21:08	04:43 21:28	05:17 21:01	06:07 20:02	06:58 18:50	07:47 17:44	07:44 15:58	08:12 15:57
29	07:50 16:44	09:43 17:41	06:53 18:31	06:00 20:24	05:00 21:10	04:43 21:28	05:19 21:00	06:08 20:00	06:59 18:48	07:48 17:42	07:45 15:57	08:12 15:58
30	07:48 16:46	09:44 17:42	06:51 18:32	06:00 20:25	05:00 21:11	04:43 21:27	05:20 20:58	06:10 19:57	07:01 18:45	07:49 17:40	07:47 15:57	08:12 15:59
31	07:47 16:48	09:45 17:43	06:50 18:33	06:00 20:26	05:00 21:12	04:43 21:27	05:22 20:57	06:12 19:55	07:02 18:46	07:50 17:39	07:48 15:58	08:12 16:00
Sonnenscheinstunden	258	277	367	416	486	500	503	454	381	331	266	243
astr.max.mögl.Beschattung	121											494

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 Layout GIII_33 Schattenrezeptor: IO 08 - Karras, Dorfstraße 10
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	08:12 16:01	09:08 (G.II_13) 16:49	07:45 17:41	06:51 19:36	06:40 20:27	05:35 21:13	04:50 21:27	04:47 20:55	05:23 19:53	06:13 18:43	07:03 16:37	06:57 15:56	09:00 (G.II_13) 09:04 (G.II_13)
2	08:12 16:02	09:08 (G.II_13) 16:51	07:44 17:43	06:38 19:37	06:38 20:29	05:33 21:14	04:49 21:27	04:47 20:53	05:25 19:51	06:15 18:41	07:04 16:35	06:59 15:55	08:59 (G.II_13) 09:07 (G.II_13)
3	08:12 16:04	09:09 (G.II_13) 16:53	07:42 17:45	06:36 19:39	06:34 20:30	05:31 21:15	04:48 21:27	04:48 20:52	05:26 19:48	06:17 18:38	07:06 16:33	07:00 15:55	08:59 (G.II_13) 09:09 (G.II_13)
4	08:12 16:05	09:10 (G.II_13) 16:55	07:40 17:47	06:45 19:41	06:34 20:32	05:30 21:16	04:47 21:26	04:49 20:50	05:28 19:46	06:18 18:36	07:08 16:31	07:02 15:54	08:58 (G.II_13) 09:10 (G.II_13)
5	08:11 16:06	09:10 (G.II_13) 16:57	07:39 17:49	06:43 19:43	06:31 20:34	05:28 21:17	04:47 21:26	04:50 20:48	05:30 19:44	06:20 18:34	07:04 16:29	07:04 15:53	08:57 (G.II_13) 09:10 (G.II_13)
6	08:11 16:07	09:11 (G.II_13) 16:59	07:37 17:50	06:29 19:44	06:29 20:35	04:46 21:18	04:50 21:25	05:31 20:47	06:22 19:41	07:11 18:31	07:06 16:27	07:05 15:53	08:57 (G.II_13) 09:12 (G.II_13)
7	08:11 16:08	09:12 (G.II_13) 17:01	07:35 17:52	06:38 19:46	06:27 20:37	05:24 21:19	04:45 21:24	04:51 20:45	06:23 19:39	07:13 18:29	07:08 16:26	07:06 15:53	08:57 (G.II_13) 09:12 (G.II_13)
8	08:10 16:10	09:13 (G.II_13) 17:03	07:33 17:54	06:36 19:48	06:24 20:39	05:22 21:20	04:45 21:24	04:52 20:43	06:25 19:37	07:15 18:27	07:09 16:24	07:07 15:52	08:57 (G.II_13) 09:13 (G.II_13)
9	08:10 16:11	09:14 (G.II_13) 17:04	07:32 17:56	06:34 19:49	06:22 20:40	05:21 21:21	04:44 21:23	04:53 20:41	06:26 19:34	07:16 18:25	07:11 16:22	07:09 15:52	08:58 (G.II_13) 09:14 (G.II_13)
10	08:09 16:13	09:16 (G.II_13) 17:06	07:30 17:58	06:31 19:51	06:20 20:42	05:19 21:22	04:44 21:22	04:54 20:39	06:28 19:32	07:18 18:22	07:13 16:21	07:08 15:52	08:58 (G.II_13) 09:15 (G.II_13)
11	08:09 16:14	09:18 (G.II_13) 17:08	07:28 17:59	06:18 19:53	06:18 20:44	05:17 21:23	04:43 21:22	04:55 20:37	06:30 19:30	07:20 18:20	07:15 16:19	07:08 15:52	08:58 (G.II_13) 09:15 (G.II_13)
12	08:08 16:15	09:22 (G.II_13) 17:10	07:26 18:01	06:15 19:55	06:15 20:45	04:43 21:23	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:17 16:18	07:08 15:51	08:58 (G.II_13) 09:16 (G.II_13)
13	08:07 16:17	09:24 (G.II_13) 17:12	07:24 18:03	06:13 19:56	06:13 20:47	04:43 21:24	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:18 16:16	07:08 15:51	08:58 (G.II_13) 09:17 (G.II_13)
14	08:07 16:18	09:25 (G.II_13) 17:14	07:22 18:05	06:11 19:58	06:11 20:48	04:43 21:25	04:59 21:19	05:44 20:31	06:35 19:23	07:25 18:13	07:20 16:15	07:08 15:51	08:59 (G.II_13) 09:17 (G.II_13)
15	08:06 16:20	09:26 (G.II_13) 17:16	07:20 18:06	06:09 20:00	06:09 20:50	04:42 21:25	05:00 21:18	05:46 20:29	06:36 19:20	07:27 18:11	07:22 16:13	07:08 15:51	08:59 (G.II_13) 09:18 (G.II_13)
16	08:05 16:22	09:27 (G.II_13) 17:17	07:18 18:08	06:06 20:01	06:06 20:51	04:42 21:26	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:24 16:12	07:08 15:52	09:00 (G.II_13) 09:18 (G.II_13)
17	08:04 16:23	09:28 (G.II_13) 17:19	07:16 18:10	06:04 20:03	06:04 20:53	04:42 21:26	05:02 21:16	05:49 20:25	06:40 19:16	07:30 18:07	07:25 16:10	07:08 15:52	09:00 (G.II_13) 09:18 (G.II_13)
18	08:03 16:25	09:29 (G.II_13) 17:21	07:15 18:12	06:02 20:05	06:02 20:54	04:42 21:27	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	07:27 16:09	07:08 15:52	09:00 (G.II_13) 09:19 (G.II_13)
19	08:02 16:26	09:30 (G.II_13) 17:23	07:14 18:13	06:00 20:07	06:00 20:56	04:42 21:27	05:05 21:14	05:52 20:21	06:43 19:11	07:34 18:03	07:29 16:08	07:08 15:52	09:01 (G.II_13) 09:20 (G.II_13)
20	08:01 16:28	09:31 (G.II_13) 17:25	07:13 18:15	06:00 20:08	06:00 20:57	04:42 21:27	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:01	07:31 16:07	07:08 15:53	09:00 (G.II_13) 09:20 (G.II_13)
21	08:00 16:30	09:32 (G.II_13) 17:27	07:12 18:17	06:00 20:10	06:00 20:59	04:42 21:27	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 16:05	07:08 15:53	09:01 (G.II_13) 09:21 (G.II_13)
22	07:59 16:32	09:33 (G.II_13) 17:29	07:11 18:19	06:00 20:12	06:00 21:00	04:43 21:28	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:34 16:04	07:08 15:53	09:02 (G.II_13) 09:22 (G.II_13)
23	07:58 16:33	09:34 (G.II_13) 17:30	07:10 18:20	06:00 20:13	06:00 21:02	04:43 21:28	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	07:36 16:03	07:08 15:54	09:02 (G.II_13) 09:22 (G.II_13)
24	07:56 16:35	09:35 (G.II_13) 17:32	07:09 18:22	06:00 20:15	06:00 21:03	04:43 21:28	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 16:02	07:08 15:55	09:03 (G.II_13) 09:22 (G.II_13)
25	07:55 16:37	09:36 (G.II_13) 17:34	07:08 18:24	06:00 20:17	06:00 21:04	04:43 21:28	05:12 21:06	06:02 20:08	06:53 18:57	07:44 17:50	07:39 16:01	07:08 15:55	09:04 (G.II_13) 09:23 (G.II_13)
26	07:54 16:39	09:37 (G.II_13) 17:36	07:07 18:25	06:00 20:19	06:00 21:06	04:43 21:28	05:13 21:04	06:04 20:06	06:54 18:55	07:46 17:48	07:40 16:00	07:08 15:56	09:04 (G.II_13) 09:23 (G.II_13)
27	07:52 16:40	09:38 (G.II_13) 17:38	07:06 18:27	06:00 20:20	06:00 21:07	04:43 21:28	05:14 21:03	06:05 20:04	06:56 18:52	07:48 17:46	07:42 15:59	07:08 15:57	09:05 (G.II_13) 09:24 (G.II_13)
28	07:51 16:42	09:39 (G.II_13) 17:40	07:05 18:29	06:00 20:22	06:00 21:08	04:43 21:28	05:15 21:01	06:07 20:02	06:58 18:50	07:50 17:44	07:44 15:58	07:08 15:57	09:05 (G.II_13) 09:24 (G.II_13)
29	07:50 16:44	09:40 (G.II_13) 17:42	07:04 18:31	06:00 20:24	06:00 21:10	04:43 21:28	05:16 21:00	06:08 20:00	06:59 18:48	07:52 17:42	07:46 15:57	07:08 15:58	09:06 (G.II_13) 09:24 (G.II_13)
30	07:48 16:46	09:41 (G.II_13) 17:44	07:03 18:33	06:00 20:25	06:00 21:11	04:43 21:27	05:17 20:58	06:10 19:57	07:01 18:45	07:54 17:40	07:48 15:57	07:08 15:59	09:07 (G.II_13) 09:24 (G.II_13)
31	07:47 16:48	09:42 (G.II_13) 17:46	07:02 18:34	06:00 20:26	06:00 21:12	04:43 21:27	05:18 20:57	06:12 19:55	07:03 18:47	07:56 17:38	07:50 16:00	07:08 16:00	09:08 (G.II_13) 09:25 (G.II_13)
Sonnenscheinstunden	258	277	367	416	486	500	503	454	381	331	266	243	522
astr.max.mögl.Beschattung	145												

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 09 - Günthersdorf 16

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni
1	08:12 16:01	07:45 16:49	08:24 (G_III_08) 06:51 08:45 (G_III_08) 17:41	07:37 (G_III_06) 06:40 07:52 (G_III_06) 19:36	07:06 (G_III_01) 05:35 07:24 (G_III_01) 20:27	04:50 21:13
2	08:12 16:02	07:43 16:51	08:25 (G_III_08) 06:49 08:46 (G_III_08) 17:43	07:39 (G_III_06) 06:38 07:50 (G_III_06) 19:37	07:06 (G_III_01) 05:33 07:24 (G_III_01) 20:29	04:49 21:14
3	08:12 16:03	07:42 16:53	08:25 (G_III_08) 06:47 08:45 (G_III_08) 17:45	07:39 (G_III_06) 06:36 07:50 (G_III_06) 19:39	07:05 (G_III_01) 05:31 07:23 (G_III_01) 20:30	04:48 21:15
4	08:12 16:05	07:40 16:55	08:26 (G_III_08) 06:45 08:45 (G_III_08) 17:47	07:39 (G_III_06) 06:33 07:50 (G_III_06) 19:41	07:05 (G_III_01) 05:29 07:23 (G_III_01) 20:32	04:47 21:16
5	08:11 16:06	07:39 16:57	08:27 (G_III_08) 06:42 08:44 (G_III_08) 17:49	07:39 (G_III_06) 06:31 07:50 (G_III_06) 19:43	07:06 (G_III_01) 05:28 07:22 (G_III_01) 20:34	04:46 21:17
6	08:11 16:07	07:37 16:59	08:13 (G_III_05) 06:40 08:43 (G_III_08) 17:50	07:39 (G_III_06) 06:29 07:50 (G_III_06) 19:44	07:07 (G_III_01) 05:26 07:21 (G_III_01) 20:35	04:46 21:18
7	08:11 16:08	07:35 17:01	08:11 (G_III_05) 06:38 08:42 (G_III_08) 17:52	07:39 (G_III_06) 06:27 07:50 (G_III_06) 19:46	07:08 (G_III_01) 05:24 07:18 (G_III_01) 20:37	04:45 21:19
8	08:10 16:10	07:33 17:02	08:09 (G_III_05) 06:36 08:40 (G_III_08) 17:54	07:11 (G_III_03) 06:24 07:22 (G_III_03) 19:48	07:08 (G_III_01) 05:22 07:24 (G_III_01) 20:39	04:45 21:20
9	08:10 16:11	07:32 17:04	08:08 (G_III_05) 06:34 08:29 (G_III_05) 17:56	07:08 (G_III_03) 06:22 07:25 (G_III_03) 19:49	07:08 (G_III_01) 05:20 07:24 (G_III_01) 20:40	04:44 21:21
10	08:09 16:12	07:30 17:06	08:07 (G_III_05) 06:31 08:30 (G_III_05) 17:57	07:05 (G_III_03) 06:20 07:26 (G_III_03) 19:51	07:05 (G_III_01) 05:19 07:26 (G_III_01) 20:42	04:44 21:22
11	08:09 16:14	07:28 17:08	08:06 (G_III_05) 06:29 08:31 (G_III_05) 17:59	07:04 (G_III_03) 06:18 07:28 (G_III_03) 19:53	07:04 (G_III_01) 05:17 07:28 (G_III_01) 20:43	04:43 21:23
12	08:08 16:15	07:26 17:10	08:05 (G_III_05) 06:27 08:31 (G_III_05) 18:01	07:03 (G_III_03) 06:15 07:29 (G_III_03) 19:55	07:03 (G_III_01) 05:15 07:29 (G_III_01) 20:45	04:43 21:23
13	08:07 16:17	07:24 17:12	08:05 (G_III_05) 06:24 08:32 (G_III_05) 18:03	07:01 (G_III_03) 06:13 07:29 (G_III_03) 19:56	07:01 (G_III_01) 05:14 07:29 (G_III_01) 20:47	04:43 21:24
14	08:06 16:18	07:22 17:14	08:05 (G_III_05) 06:22 08:32 (G_III_05) 18:05	06:50 (G_III_02) 06:11 07:29 (G_III_03) 19:58	07:00 (G_III_01) 05:12 07:29 (G_III_01) 20:48	04:42 21:25
15	08:06 16:20	07:20 17:16	08:04 (G_III_05) 06:20 08:32 (G_III_05) 18:06	06:46 (G_III_02) 06:09 07:30 (G_III_03) 20:00	06:59 (G_III_01) 05:11 07:30 (G_III_01) 20:50	04:42 21:25
16	08:05 16:21	07:18 17:17	08:04 (G_III_05) 06:17 08:32 (G_III_05) 18:08	06:43 (G_III_02) 06:06 07:29 (G_III_03) 20:01	06:59 (G_III_01) 05:09 07:30 (G_III_01) 20:51	04:42 21:26
17	08:04 16:23	07:16 17:19	08:04 (G_III_05) 06:15 08:32 (G_III_05) 18:10	06:42 (G_III_02) 06:04 07:29 (G_III_03) 20:03	06:58 (G_III_01) 05:07 07:29 (G_III_01) 20:53	04:42 21:26
18	08:03 16:25	07:14 17:21	07:41 (G_III_06) 06:13 08:32 (G_III_05) 18:12	06:41 (G_III_02) 06:02 07:29 (G_III_03) 20:05	06:58 (G_III_01) 05:06 07:29 (G_III_01) 20:54	04:42 21:27
19	08:02 16:26	07:12 17:23	07:39 (G_III_06) 06:11 08:32 (G_III_05) 18:13	06:40 (G_III_02) 06:00 07:27 (G_III_03) 20:07	06:58 (G_III_01) 05:05 07:27 (G_III_01) 20:56	04:42 21:27
20	08:01 16:28	07:10 17:25	07:38 (G_III_06) 06:08 08:31 (G_III_05) 18:15	06:39 (G_III_02) 05:58 07:27 (G_III_03) 20:08	06:58 (G_III_01) 05:03 07:27 (G_III_01) 20:57	04:42 21:27
21	08:00 16:30	07:08 17:27	07:36 (G_III_06) 06:06 08:29 (G_III_05) 18:17	06:39 (G_III_02) 05:56 07:26 (G_III_03) 20:10	06:58 (G_III_01) 05:02 07:26 (G_III_01) 20:59	04:42 21:27
22	07:59 16:31	07:06 17:29	07:35 (G_III_06) 06:04 08:28 (G_III_05) 18:18	06:38 (G_III_02) 05:53 07:24 (G_III_03) 20:12	06:58 (G_III_01) 05:00 07:24 (G_III_01) 21:00	04:43 21:28
23	07:57 16:33	07:04 17:30	07:35 (G_III_06) 06:01 08:27 (G_III_05) 18:20	06:39 (G_III_02) 05:51 07:23 (G_III_03) 20:13	06:59 (G_III_01) 04:59 07:23 (G_III_01) 21:02	04:43 21:28
24	07:56 16:35	07:02 17:32	07:35 (G_III_06) 05:59 08:25 (G_III_05) 18:22	06:39 (G_III_02) 05:49 07:21 (G_III_03) 20:15	06:59 (G_III_01) 04:58 07:21 (G_III_01) 21:03	04:43 21:28
25	07:55 16:37	07:00 17:34	07:35 (G_III_06) 05:57 08:22 (G_III_05) 18:24	06:39 (G_III_02) 05:47 07:18 (G_III_03) 20:17	06:59 (G_III_01) 04:57 07:18 (G_III_01) 21:04	04:43 21:28
26	07:54 16:38	06:58 17:36	07:35 (G_III_06) 05:54 07:55 (G_III_06) 18:25	06:41 (G_III_02) 05:45 06:56 (G_III_02) 20:18	06:59 (G_III_01) 04:56 06:56 (G_III_01) 21:06	04:44 21:28
27	07:52 16:40	06:56 17:38	07:35 (G_III_06) 05:52 07:54 (G_III_06) 18:27	06:43 (G_III_02) 05:43 06:54 (G_III_02) 20:20	06:59 (G_III_01) 04:54 06:54 (G_III_01) 21:07	04:44 21:28
28	07:51 16:42	06:54 17:40	07:36 (G_III_06) 05:50 07:53 (G_III_06) 18:29	06:12 (G_III_01) 05:41 06:21 (G_III_01) 20:22	06:59 (G_III_01) 04:53 06:21 (G_III_01) 21:08	04:45 21:28
29	07:50 16:44	06:54 17:45	07:36 (G_III_06) 05:49 07:53 (G_III_06) 18:30	07:10 (G_III_01) 05:39 07:23 (G_III_01) 20:24	06:59 (G_III_01) 04:52 07:23 (G_III_01) 21:10	04:45 21:28
30	07:48 16:46	06:54 17:46	07:36 (G_III_06) 05:48 07:53 (G_III_06) 18:31	07:08 (G_III_01) 05:37 07:24 (G_III_01) 20:25	06:59 (G_III_01) 04:51 07:24 (G_III_01) 21:11	04:46 21:27
31	07:47 16:48	06:54 17:47	07:36 (G_III_06) 05:47 07:53 (G_III_06) 18:32	07:07 (G_III_01) 05:36 07:24 (G_III_01) 20:26	06:59 (G_III_01) 04:50 07:24 (G_III_01) 21:12	04:46 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr. max. mögl. Beschattung	171	767	748	112		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 09 - Günthersdorf 16

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

	Juli	August	September		Oktober		November		Dezember	
1	04:46	05:23	06:13		07:03	07:41 (G_III_03)	06:57	07:37 (G_III_05)	07:48	
	21:27	20:55	19:53		18:43	27 08:08 (G_III_03)	16:36	22 07:59 (G_III_05)	15:56	
2	04:47	05:25	06:15		07:04	07:42 (G_III_03)	06:59	07:38 (G_III_05)	07:50	
	21:27	20:53	19:50		18:41	25 08:07 (G_III_03)	16:35	20 07:58 (G_III_05)	15:55	
3	04:48	05:26	06:17		07:06	07:43 (G_III_03)	07:00	07:39 (G_III_05)	07:51	
	21:26	20:52	19:48		18:38	22 08:05 (G_III_03)	16:33	26 08:10 (G_III_08)	15:54	
4	04:49	05:28	06:18		07:08	07:44 (G_III_03)	07:02	07:41 (G_III_05)	07:52	
	21:26	20:50	19:46		18:36	19 08:03 (G_III_03)	16:31	27 08:12 (G_III_08)	15:54	
5	04:49	05:29	06:20		07:09	07:46 (G_III_03)	07:04	07:45 (G_III_05)	07:54	
	21:26	20:48	19:44	10	07:15 (G_III_01)	18:34	15 08:01 (G_III_03)	16:29	23 08:14 (G_III_08)	15:53
6	04:50	05:31	06:21		07:11	07:49 (G_III_03)	07:06	07:57 (G_III_08)	07:55	
	21:25	20:46	19:41	14	07:16 (G_III_01)	18:31	7 07:56 (G_III_03)	16:27	18 08:15 (G_III_08)	15:53
7	04:51	05:33	06:23		07:13		07:08	07:57 (G_III_08)	07:56	
	21:24	20:45	19:39	16	07:17 (G_III_01)	18:29		16:26	19 08:16 (G_III_08)	15:52
8	04:52	05:34	06:25		07:14		07:09	07:55 (G_III_08)	07:57	
	21:24	20:43	19:37	17	07:18 (G_III_01)	18:27		16:24	20 08:15 (G_III_08)	15:52
9	04:53	05:36	06:26		07:16		07:11	07:55 (G_III_08)	07:59	
	21:23	20:41	19:34	18	07:17 (G_III_01)	18:25		16:22	21 08:16 (G_III_08)	15:52
10	04:54	05:37	06:28		07:18		07:13	07:55 (G_III_08)	08:00	
	21:22	20:39	19:32	18	07:17 (G_III_01)	18:22		16:21	21 08:16 (G_III_08)	15:52
11	04:55	05:39	06:30		07:20	08:14 (G_III_06)	07:15	07:55 (G_III_08)	08:01	
	21:22	20:37	19:30	18	07:16 (G_III_01)	18:20	7 08:21 (G_III_06)	16:19	21 08:16 (G_III_08)	15:51
12	04:56	05:41	06:31		07:21	08:11 (G_III_06)	07:17	07:55 (G_III_08)	08:02	
	21:21	20:35	19:27	17	07:16 (G_III_01)	18:18	13 08:24 (G_III_06)	16:18	21 08:16 (G_III_08)	15:51
13	04:57	05:42	06:33		07:23	08:10 (G_III_06)	07:18	07:56 (G_III_08)	08:03	
	21:20	20:33	19:25	16	07:14 (G_III_01)	18:16	16 08:26 (G_III_06)	16:16	20 08:16 (G_III_08)	15:51
14	04:58	05:44	06:35		07:25	08:09 (G_III_06)	07:20	07:56 (G_III_08)	08:04	
	21:19	20:31	19:23	13	07:13 (G_III_01)	18:13	18 08:27 (G_III_06)	16:15	20 08:16 (G_III_08)	15:51
15	05:00	05:45	06:36		07:26	08:07 (G_III_06)	07:22	07:57 (G_III_08)	08:05	
	21:18	20:29	19:20	10	07:12 (G_III_01)	18:11	19 08:26 (G_III_06)	16:13	19 08:16 (G_III_08)	15:51
16	05:01	05:47	06:38		07:28	08:06 (G_III_06)	07:24	07:58 (G_III_08)	08:06	
	21:17	20:27	19:18	12	07:41 (G_III_02)	18:09	21 08:27 (G_III_06)	16:12	18 08:16 (G_III_08)	15:51
17	05:02	05:49	06:39		07:30	08:06 (G_III_06)	07:25	07:59 (G_III_08)	08:06	
	21:16	20:25	19:16	14	07:44 (G_III_02)	18:07	33 08:55 (G_III_05)	16:10	16 08:15 (G_III_08)	15:52
18	05:03	05:50	06:41		07:32	08:06 (G_III_06)	07:27	08:00 (G_III_08)	08:07	
	21:15	20:23	19:13	28	08:04 (G_III_03)	18:05	37 08:57 (G_III_05)	16:09	15 08:15 (G_III_08)	15:52
19	05:05	05:52	06:43		07:33	08:06 (G_III_06)	07:29	08:02 (G_III_08)	08:08	
	21:14	20:21	19:11	36	08:07 (G_III_03)	18:03	40 08:59 (G_III_05)	16:08	12 08:14 (G_III_08)	15:52
20	05:06	05:54	06:44		07:35	08:07 (G_III_06)	07:31	08:04 (G_III_08)	08:09	
	21:12	20:19	19:09	42	08:09 (G_III_03)	18:00	41 09:00 (G_III_05)	16:06	8 08:12 (G_III_08)	15:52
21	05:07	05:55	06:46		07:37	08:08 (G_III_06)	07:32		08:09	
	21:11	20:17	19:06	45	08:09 (G_III_03)	17:58	41 09:01 (G_III_05)	16:05		15:53
22	05:09	05:57	06:48		07:39	08:08 (G_III_06)	07:34		08:10	
	21:10	20:15	19:04	46	08:10 (G_III_03)	17:56	41 09:01 (G_III_05)	16:04		15:53
23	05:10	05:59	06:49		07:41	08:09 (G_III_06)	07:36		08:10	
	21:09	20:13	19:02	47	08:11 (G_III_03)	17:54	40 09:01 (G_III_05)	16:03		15:54
24	05:11	06:00	06:51		07:42	08:11 (G_III_06)	07:37		08:11	
	21:07	20:10	18:59	48	08:11 (G_III_03)	17:52	36 09:02 (G_III_05)	16:02		15:54
25	05:13	06:02	06:53		06:44	07:34 (G_III_05)	07:39		08:11	
	21:06	20:08	18:57	47	08:11 (G_III_03)	16:50	28 08:02 (G_III_05)	16:01		15:55
26	05:14	06:03	06:54		06:46	07:34 (G_III_05)	07:40		08:11	
	21:04	20:06	18:55	48	08:11 (G_III_03)	16:48	28 08:02 (G_III_05)	16:00		15:56
27	05:16	06:05	06:56		06:48	07:34 (G_III_05)	07:42		08:12	
	21:03	20:04	18:52	47	08:11 (G_III_03)	16:46	28 08:02 (G_III_05)	15:59		15:56
28	05:17	06:07	06:58		06:50	07:34 (G_III_05)	07:44		08:12	
	21:01	20:02	18:50	42	08:10 (G_III_03)	16:44	28 08:02 (G_III_05)	15:58		15:57
29	05:19	06:08	06:59		06:51	07:35 (G_III_05)	07:45		08:12	
	21:00	19:59	18:48	37	08:10 (G_III_03)	16:42	26 08:01 (G_III_05)	15:57		15:58
30	05:20	06:10	07:01		06:53	07:35 (G_III_05)	07:47		08:12	
	20:58	19:57	18:45	28	08:09 (G_III_03)	16:40	26 08:01 (G_III_05)	15:56		15:59
31	05:22	06:12			06:55	07:36 (G_III_05)			08:12	
	20:57	19:55			16:38	24 08:00 (G_III_05)			16:00	
Sonnenscheinstunden	503	454	381		331		266		243	
astr.max.mögl.Beschattung			734		706		387			

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 Layout GIII_33 Schattenrezeptor: IO 10 - Günthersdorf 15
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	08:12 16:01	07:45 16:49	08:34 (G_III_08) 06:51 08:56 (G_III_08) 17:41	07:39 (G_III_06) 06:40 07:58 (G_III_06) 19:36	07:04 (G_III_01) 05:35 08:15 (G_III_03) 20:27	04:50 21:13
2	08:12 16:02	07:43 16:51	08:35 (G_III_08) 06:49 08:57 (G_III_08) 17:43	07:40 (G_III_06) 06:38 07:57 (G_III_06) 19:37	07:02 (G_III_01) 05:33 07:17 (G_III_01) 20:29	04:49 21:14
3	08:12 16:03	07:42 16:53	08:36 (G_III_08) 06:47 08:56 (G_III_08) 17:45	07:41 (G_III_06) 06:36 07:54 (G_III_06) 19:39	07:00 (G_III_01) 05:31 07:17 (G_III_01) 20:30	04:48 21:15
4	08:12 16:05	07:40 16:55	08:23 (G_III_05) 06:45 08:55 (G_III_08) 17:47	07:44 (G_III_06) 06:33 07:51 (G_III_06) 19:41	06:59 (G_III_01) 05:29 07:18 (G_III_01) 20:32	04:47 21:16
5	08:11 16:06	07:39 16:57	08:20 (G_III_05) 06:42 08:53 (G_III_08) 17:49	07:40 (G_III_06) 06:31 07:04 (G_III_04) 19:43	06:59 (G_III_01) 05:28 07:19 (G_III_01) 20:34	04:46 21:17
6	08:11 16:07	07:37 16:59	08:19 (G_III_05) 06:40 08:52 (G_III_08) 17:50	07:04 (G_III_04) 06:29 07:13 (G_III_04) 19:44	06:59 (G_III_01) 05:26 07:19 (G_III_01) 20:35	04:46 21:18
7	08:11 16:08	07:35 17:01	08:18 (G_III_05) 06:38 08:50 (G_III_08) 17:52	07:02 (G_III_04) 06:27 07:15 (G_III_04) 19:46	06:58 (G_III_01) 05:24 07:18 (G_III_01) 20:37	04:45 21:19
8	08:10 16:10	07:33 17:02	08:17 (G_III_05) 06:36 08:42 (G_III_05) 17:54	07:01 (G_III_04) 06:26 07:17 (G_III_04) 19:48	06:58 (G_III_01) 05:22 07:17 (G_III_01) 20:39	04:45 21:20
9	08:10 16:11	07:32 17:04	08:16 (G_III_05) 06:33 08:43 (G_III_05) 17:56	07:00 (G_III_04) 06:22 07:18 (G_III_04) 19:49	06:58 (G_III_01) 05:20 07:17 (G_III_01) 20:40	04:44 21:21
10	08:09 16:12	07:30 17:06	08:15 (G_III_05) 06:31 08:44 (G_III_05) 17:57	06:58 (G_III_04) 06:20 07:17 (G_III_04) 19:51	06:59 (G_III_01) 05:19 07:16 (G_III_01) 20:42	04:44 21:22
11	08:09 16:14	07:28 17:08	08:14 (G_III_05) 06:29 08:45 (G_III_05) 17:59	06:58 (G_III_04) 06:18 07:23 (G_III_03) 19:53	06:59 (G_III_01) 05:17 07:14 (G_III_01) 20:43	04:43 21:23
12	08:08 16:15	07:26 17:10	08:14 (G_III_05) 06:27 08:45 (G_III_05) 18:01	06:58 (G_III_04) 06:15 07:27 (G_III_03) 19:55	07:00 (G_III_01) 05:15 07:12 (G_III_01) 20:45	04:43 21:23
13	08:07 16:17	07:24 17:12	08:14 (G_III_05) 06:24 08:46 (G_III_05) 18:03	06:57 (G_III_04) 06:13 07:28 (G_III_03) 19:56	07:03 (G_III_01) 05:14 07:09 (G_III_01) 20:47	04:43 21:24
14	08:06 16:18	07:22 17:14	08:13 (G_III_05) 06:22 08:46 (G_III_05) 18:05	06:58 (G_III_04) 06:11 07:29 (G_III_03) 19:58	07:09 (G_III_01) 05:12 07:16 (G_III_01) 20:48	04:42 21:25
15	08:06 16:20	07:20 17:16	08:13 (G_III_05) 06:20 08:46 (G_III_05) 18:06	06:59 (G_III_04) 06:09 07:31 (G_III_03) 20:00	07:16 (G_III_01) 05:11 07:31 (G_III_03) 20:00	04:42 21:25
16	08:05 16:21	07:18 17:17	08:13 (G_III_05) 06:17 08:46 (G_III_05) 18:08	06:59 (G_III_04) 06:06 07:31 (G_III_03) 20:01	07:31 (G_III_03) 20:01 07:31 (G_III_03) 20:01	04:42 21:26
17	08:04 16:23	07:16 17:19	08:46 (G_III_05) 18:10 07:48 (G_III_06) 06:15	06:59 (G_III_04) 06:04 07:31 (G_III_03) 20:03	07:31 (G_III_03) 20:03 07:31 (G_III_03) 20:03	04:42 21:26
18	08:03 16:25	07:14 17:21	07:44 (G_III_06) 06:13 08:46 (G_III_05) 18:11	06:42 (G_III_02) 06:02 07:32 (G_III_03) 20:05	07:32 (G_III_03) 20:05 07:32 (G_III_03) 20:05	04:42 21:27
19	08:02 16:26	07:12 17:23	07:42 (G_III_06) 06:11 08:45 (G_III_05) 18:13	06:39 (G_III_02) 06:00 07:31 (G_III_03) 20:07	07:32 (G_III_03) 20:07 07:31 (G_III_03) 20:07	04:42 21:27
20	08:01 16:28	07:10 17:25	07:41 (G_III_06) 06:08 08:45 (G_III_05) 18:15	06:38 (G_III_02) 05:58 07:32 (G_III_03) 20:08	07:31 (G_III_03) 20:08 07:32 (G_III_03) 20:08	04:42 21:27
21	08:00 16:30	07:08 17:27	07:39 (G_III_06) 06:06 08:43 (G_III_05) 18:17	06:37 (G_III_02) 05:56 07:32 (G_III_03) 20:10	07:32 (G_III_03) 20:10 07:32 (G_III_03) 20:10	04:42 21:27
22	07:59 16:31	07:06 17:29	07:38 (G_III_06) 06:04 08:42 (G_III_05) 18:18	06:35 (G_III_02) 05:53 07:31 (G_III_03) 20:12	07:32 (G_III_03) 20:12 07:31 (G_III_03) 20:12	04:43 21:28
23	07:57 16:33	07:04 17:30	07:38 (G_III_06) 06:01 08:41 (G_III_05) 18:20	06:35 (G_III_02) 05:51 07:31 (G_III_03) 20:13	07:31 (G_III_03) 20:13 07:31 (G_III_03) 20:13	04:43 21:28
24	07:56 16:35	07:02 17:32	07:38 (G_III_06) 05:59 08:39 (G_III_05) 18:22	06:34 (G_III_02) 05:49 07:30 (G_III_03) 20:15	07:31 (G_III_03) 20:15 07:30 (G_III_03) 20:15	04:43 21:28
25	07:55 16:37	07:00 17:34	07:38 (G_III_06) 05:57 08:37 (G_III_05) 18:24	06:33 (G_III_02) 05:47 07:29 (G_III_03) 20:17	07:30 (G_III_03) 20:17 07:29 (G_III_03) 20:17	04:43 21:28
26	07:54 16:38	06:58 17:36	07:37 (G_III_06) 05:54 08:33 (G_III_05) 18:25	06:34 (G_III_02) 05:45 07:28 (G_III_03) 20:18	07:29 (G_III_03) 20:18 07:28 (G_III_03) 20:18	04:44 21:28
27	07:52 16:40	06:56 17:38	07:37 (G_III_06) 05:52 07:59 (G_III_06) 18:27	06:34 (G_III_02) 05:43 07:27 (G_III_03) 20:20	07:28 (G_III_03) 20:20 07:27 (G_III_03) 20:20	04:44 21:28
28	07:51 16:42	06:53 17:39	07:38 (G_III_06) 05:50 07:59 (G_III_06) 18:29	06:33 (G_III_02) 05:41 07:25 (G_III_03) 20:22	07:27 (G_III_03) 20:22 07:25 (G_III_03) 20:22	04:45 21:28
29	07:50 16:44	06:53 17:39	07:38 (G_III_06) 05:50 08:24 (G_III_03) 20:24	07:25 (G_III_03) 20:22 08:24 (G_III_03) 20:24	07:25 (G_III_03) 20:22 08:24 (G_III_03) 20:24	04:45 21:28
30	07:48 16:46	06:53 17:39	07:38 (G_III_06) 05:50 08:22 (G_III_03) 20:25	07:25 (G_III_03) 20:22 08:22 (G_III_03) 20:25	07:25 (G_III_03) 20:22 08:22 (G_III_03) 20:25	04:46 21:27
31	07:47 16:48	06:53 17:39	07:38 (G_III_06) 05:50 08:18 (G_III_03) 20:25	07:25 (G_III_03) 20:22 08:18 (G_III_03) 20:25	07:25 (G_III_03) 20:22 08:18 (G_III_03) 20:25	04:46 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr. max. mögl. Beschattung	285	943	1060	230		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 10 - Günthersdorf 15
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

	Jul	August	September	Oktober	November	Dezember	
1	04:46 21:27	05:23 20:55	06:13 19:53	06:58 (G_III_01) 18:43	07:03 18:06 (G_III_03)	06:57 16:36	07:45 (G_III_05) 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	06:57 (G_III_01) 18:41	07:04 18:04 (G_III_03)	06:59 16:35	07:46 (G_III_05) 15:55
3	04:48 21:26	05:26 20:52	06:17 19:48	06:56 (G_III_01) 18:38	07:06 18:03 (G_III_03)	07:00 16:33	07:47 (G_III_05) 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	06:55 (G_III_01) 18:36	07:08 18:03 (G_III_03)	07:02 16:31	07:48 (G_III_05) 15:54
5	04:49 21:26	05:29 20:48	06:20 19:44	06:55 (G_III_01) 18:34	07:09 18:03 (G_III_03)	07:04 16:29	07:49 (G_III_05) 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	06:54 (G_III_01) 18:31	07:11 18:02 (G_III_03)	07:06 16:27	07:52 (G_III_05) 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	06:54 (G_III_01) 18:29	07:13 18:01 (G_III_03)	07:08 16:26	07:53 (G_III_05) 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	06:53 (G_III_01) 18:27	07:14 18:00 (G_III_03)	07:09 16:24	07:57 (G_III_05) 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	06:54 (G_III_01) 18:25	07:16 18:00 (G_III_03)	07:11 16:22	07:59 (G_III_05) 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	06:55 (G_III_01) 18:22	07:18 18:00 (G_III_03)	07:13 16:21	08:00 (G_III_05) 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	06:56 (G_III_01) 18:20	07:20 18:00 (G_III_03)	07:15 16:19	08:01 (G_III_05) 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:00 (G_III_01) 18:18	07:21 18:00 (G_III_03)	07:17 16:18	08:02 (G_III_05) 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:26 (G_III_02) 18:16	07:23 18:00 (G_III_03)	07:18 16:16	08:03 (G_III_05) 15:51
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 (G_III_02) 18:13	07:25 18:00 (G_III_03)	07:20 16:15	08:04 (G_III_05) 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:24 (G_III_02) 18:11	07:26 18:00 (G_III_03)	07:22 16:13	08:05 (G_III_05) 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:22 (G_III_02) 18:09	07:28 18:00 (G_III_03)	07:24 16:12	08:06 (G_III_05) 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:22 (G_III_02) 18:07	07:30 18:00 (G_III_03)	07:25 16:10	08:06 (G_III_05) 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:21 (G_III_02) 18:05	07:32 18:00 (G_III_03)	07:27 16:09	08:07 (G_III_05) 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:21 (G_III_02) 18:03	07:33 18:00 (G_III_03)	07:29 16:08	08:08 (G_III_05) 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:21 (G_III_02) 18:00	07:35 18:00 (G_III_03)	07:31 16:06	08:09 (G_III_05) 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:21 (G_III_02) 17:58	07:37 18:00 (G_III_03)	07:32 16:05	08:09 (G_III_05) 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:21 (G_III_02) 17:56	07:39 18:00 (G_III_03)	07:34 16:04	08:11 (G_III_05) 15:53
23	05:10 21:09	05:59 20:13	06:49 19:02	07:22 (G_III_02) 17:54	07:41 18:00 (G_III_03)	07:36 16:03	08:12 (G_III_05) 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:22 (G_III_02) 17:52	07:42 18:00 (G_III_03)	07:37 16:02	08:14 (G_III_05) 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:24 (G_III_02) 16:50	07:43 18:00 (G_III_03)	07:39 16:01	08:17 (G_III_05) 15:55
26	05:14 21:04	06:03 20:06	06:54 18:55	07:26 (G_III_02) 16:48	07:43 18:00 (G_III_03)	07:40 16:00	08:11 (G_III_05) 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	07:41 (G_III_04) 16:46	07:43 18:00 (G_III_03)	07:42 15:59	08:12 (G_III_05) 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	07:40 (G_III_04) 16:44	07:43 18:00 (G_III_03)	07:44 15:58	08:12 (G_III_05) 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	07:38 (G_III_04) 16:42	07:43 18:00 (G_III_03)	07:45 15:57	08:12 (G_III_05) 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	07:37 (G_III_04) 16:40	07:44 18:00 (G_III_03)	07:47 15:56	08:12 (G_III_05) 15:59
31	05:22 20:57	06:12 19:55	07:00 (G_III_01) 07:12 (G_III_01)	16:38	06:55 08:14 (G_III_05)	07:47 16:00	08:12 (G_III_05) 16:00
Sonnenscheinstunden	503	454	381	331	266	243	
astr. max. mögl. Beschattung		18	1091	883	557		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 11 - Günthersdorf 14
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	08:12 16:01	07:45 16:49	08:28 (G_III_05) 06:51 09:01 (G_III_08) 17:41	07:52 (G_III_06) 06:40 07:59 (G_III_06) 19:36	07:06 (G_III_01) 05:35 07:24 (G_III_01) 20:27	04:50 21:13
2	08:12 16:02	07:43 16:51	08:27 (G_III_05) 06:49 09:00 (G_III_08) 17:43	06:38 19:37	07:05 (G_III_01) 05:33 07:25 (G_III_01) 20:29	04:49 21:14
3	08:12 16:03	07:42 16:53	08:26 (G_III_05) 06:47 08:58 (G_III_08) 17:45	07:12 (G_III_04) 06:36 07:18 (G_III_04) 19:39	07:04 (G_III_01) 05:31 07:24 (G_III_01) 20:30	04:48 21:15
4	08:12 16:05	07:40 16:55	08:25 (G_III_05) 06:45 08:53 (G_III_05) 17:47	07:09 (G_III_04) 06:33 07:21 (G_III_04) 19:41	07:04 (G_III_01) 05:29 07:24 (G_III_01) 20:32	04:47 21:16
5	08:11 16:06	07:39 16:57	08:24 (G_III_05) 06:42 08:53 (G_III_05) 17:49	07:08 (G_III_04) 06:31 07:23 (G_III_04) 19:43	07:04 (G_III_01) 05:28 07:24 (G_III_01) 20:34	04:46 21:17
6	08:11 16:07	07:37 16:59	08:24 (G_III_05) 06:40 08:54 (G_III_05) 17:50	07:06 (G_III_04) 06:29 07:33 (G_III_03) 19:44	07:04 (G_III_01) 05:26 07:24 (G_III_01) 20:35	04:46 21:18
7	08:11 16:08	07:35 17:01	08:24 (G_III_05) 06:38 08:55 (G_III_05) 17:52	07:05 (G_III_04) 06:27 07:37 (G_III_03) 19:46	07:03 (G_III_01) 05:24 07:22 (G_III_01) 20:37	04:45 21:19
8	08:10 16:10	07:33 17:02	08:24 (G_III_05) 06:36 08:56 (G_III_05) 17:54	07:05 (G_III_04) 06:26 07:39 (G_III_03) 19:48	07:04 (G_III_01) 05:22 07:21 (G_III_01) 20:39	04:45 21:20
9	08:10 16:11	07:32 17:04	08:23 (G_III_05) 06:33 08:56 (G_III_05) 17:56	07:04 (G_III_04) 06:22 07:41 (G_III_03) 19:49	07:05 (G_III_01) 05:20 07:20 (G_III_01) 20:40	04:44 21:21
10	08:09 16:12	07:30 17:06	08:23 (G_III_05) 06:31 08:56 (G_III_05) 17:57	07:04 (G_III_04) 06:20 07:41 (G_III_03) 19:51	07:07 (G_III_01) 05:19 07:18 (G_III_01) 20:42	04:44 21:22
11	08:09 16:14	07:28 17:08	08:23 (G_III_05) 06:29 08:56 (G_III_05) 17:59	07:04 (G_III_04) 06:18 07:42 (G_III_03) 19:53	07:07 (G_III_01) 05:17 07:18 (G_III_01) 20:43	04:43 21:23
12	08:08 16:15	07:26 17:10	08:23 (G_III_05) 06:27 08:56 (G_III_05) 18:01	07:05 (G_III_04) 06:15 07:43 (G_III_03) 19:55	07:07 (G_III_01) 05:15 07:18 (G_III_01) 20:45	04:43 21:23
13	08:07 16:17	07:24 17:12	08:23 (G_III_05) 06:24 08:56 (G_III_05) 18:03	07:05 (G_III_04) 06:13 07:43 (G_III_03) 19:56	07:04 (G_III_01) 05:14 07:18 (G_III_01) 20:47	04:43 21:24
14	08:06 16:18	07:22 17:14	07:53 (G_III_06) 06:22 08:55 (G_III_05) 18:05	06:53 (G_III_02) 06:11 07:44 (G_III_03) 19:58	07:03 (G_III_01) 05:12 07:18 (G_III_01) 20:48	04:42 21:25
15	08:06 16:20	07:20 17:16	07:50 (G_III_06) 06:20 08:55 (G_III_05) 18:06	06:50 (G_III_02) 06:09 07:44 (G_III_03) 20:00	07:03 (G_III_01) 05:11 07:18 (G_III_01) 20:50	04:42 21:25
16	08:05 16:21	07:18 17:17	07:48 (G_III_06) 06:17 08:54 (G_III_05) 18:08	06:47 (G_III_02) 06:06 07:43 (G_III_03) 20:01	07:03 (G_III_01) 05:09 07:18 (G_III_01) 20:51	04:42 21:26
17	08:04 16:23	07:16 17:19	07:47 (G_III_06) 06:15 08:54 (G_III_05) 18:10	06:45 (G_III_02) 06:04 07:43 (G_III_03) 20:03	07:03 (G_III_01) 05:07 07:18 (G_III_01) 20:53	04:42 21:26
18	08:03 16:25	07:14 17:21	07:46 (G_III_06) 06:13 08:53 (G_III_05) 18:11	06:44 (G_III_02) 06:02 07:43 (G_III_03) 20:05	07:03 (G_III_01) 05:06 07:18 (G_III_01) 20:54	04:42 21:27
19	08:02 16:26	07:12 17:23	07:46 (G_III_06) 06:11 08:51 (G_III_05) 18:13	06:43 (G_III_02) 06:00 07:42 (G_III_03) 20:07	07:03 (G_III_01) 05:05 07:18 (G_III_01) 20:56	04:42 21:27
20	08:01 16:28	07:10 17:25	07:45 (G_III_06) 06:08 08:50 (G_III_05) 18:15	06:42 (G_III_02) 05:58 07:41 (G_III_03) 20:08	07:03 (G_III_01) 05:03 07:18 (G_III_01) 20:57	04:42 21:27
21	08:00 16:30	07:08 17:27	07:44 (G_III_06) 06:06 08:47 (G_III_05) 18:17	06:42 (G_III_02) 05:56 07:41 (G_III_03) 20:10	07:03 (G_III_01) 05:02 07:18 (G_III_01) 20:59	04:42 21:27
22	07:59 16:31	07:06 17:29	07:44 (G_III_06) 06:04 08:43 (G_III_05) 18:18	06:41 (G_III_02) 05:53 07:39 (G_III_03) 20:12	07:03 (G_III_01) 05:00 07:18 (G_III_01) 21:00	04:42 21:28
23	07:57 16:33	07:04 17:30	07:45 (G_III_06) 06:01 08:07 (G_III_06) 18:20	06:41 (G_III_02) 05:51 07:38 (G_III_03) 20:13	07:03 (G_III_01) 04:59 07:18 (G_III_01) 21:02	04:43 21:28
24	07:56 16:35	07:02 17:32	07:45 (G_III_06) 05:59 08:07 (G_III_06) 18:22	06:42 (G_III_02) 05:49 07:37 (G_III_03) 20:15	07:03 (G_III_01) 04:58 07:18 (G_III_01) 21:03	04:43 21:28
25	07:55 16:37	07:00 17:34	07:46 (G_III_06) 05:57 08:07 (G_III_06) 18:24	06:41 (G_III_02) 05:47 07:34 (G_III_03) 20:17	07:03 (G_III_01) 04:57 07:18 (G_III_01) 21:04	04:43 21:28
26	07:54 16:38	06:58 17:36	07:46 (G_III_06) 05:54 08:05 (G_III_06) 18:25	06:42 (G_III_02) 05:45 07:33 (G_III_03) 20:18	07:03 (G_III_01) 04:56 07:18 (G_III_01) 21:06	04:44 21:28
27	07:52 16:40	06:56 17:38	07:47 (G_III_06) 05:52 08:04 (G_III_06) 18:27	06:43 (G_III_02) 05:43 07:30 (G_III_03) 20:20	07:03 (G_III_01) 04:54 07:18 (G_III_01) 21:07	04:44 21:28
28	07:51 16:42	06:53 17:39	07:49 (G_III_06) 05:50 08:02 (G_III_06) 18:29	06:44 (G_III_02) 05:41 07:24 (G_III_03) 20:22	07:03 (G_III_01) 04:53 07:18 (G_III_01) 21:08	04:45 21:28
29	07:50 16:44	06:51 17:41	07:46 (G_III_06) 05:47 08:03 (G_III_06) 18:31	07:12 (G_III_01) 05:39 07:57 (G_III_02) 20:24	07:03 (G_III_01) 04:52 07:18 (G_III_01) 21:10	04:45 21:28
30	07:48 16:46	06:50 17:43	07:46 (G_III_06) 05:46 08:03 (G_III_06) 18:32	07:10 (G_III_01) 05:37 07:22 (G_III_01) 20:25	07:03 (G_III_01) 04:51 07:18 (G_III_01) 21:11	04:46 21:27
31	07:47 16:47	06:49 17:45	07:46 (G_III_06) 05:45 08:03 (G_III_06) 18:34	07:07 (G_III_01) 05:37 07:23 (G_III_01) 20:26	07:03 (G_III_01) 04:50 07:18 (G_III_01) 21:12	04:46 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr. max. mögl. Beschattung	417	913	1109	180		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 11 - Günthersdorf 14
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

	Jul	August	September	Oktober	November	Dezember			
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:44 (G_III_04) 08:22 (G_III_03)	06:57 16:36	07:53 (G_III_05) 08:26 (G_III_05)	07:48 15:56	08:28 (G_III_08) 08:29 (G_III_08)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:05 (G_III_01) 07:16 (G_III_01)	07:04 18:41	06:59 16:35	07:53 (G_III_05) 08:25 (G_III_05)	07:49 15:55	
3	04:48 21:26	05:26 20:52	06:17 19:48	07:03 (G_III_01) 07:18 (G_III_01)	07:06 18:38	07:00 16:33	07:53 (G_III_05) 08:25 (G_III_05)	07:51 15:54	
4	04:49 21:26	05:28 20:50	06:18 19:46	07:01 (G_III_01) 07:18 (G_III_01)	07:08 18:36	07:02 16:31	07:54 (G_III_05) 08:25 (G_III_05)	07:52 15:54	
5	04:49 21:26	05:29 20:48	06:20 19:44	07:01 (G_III_01) 07:19 (G_III_01)	07:09 18:34	07:04 16:29	07:54 (G_III_05) 08:24 (G_III_05)	07:54 15:53	
6	04:50 21:25	05:31 20:46	06:21 19:41	06:59 (G_III_01) 07:19 (G_III_01)	07:11 18:31	07:06 16:27	07:55 (G_III_05) 08:24 (G_III_05)	07:55 15:53	
7	04:51 21:24	05:33 20:45	06:23 19:39	06:59 (G_III_01) 07:19 (G_III_01)	07:13 18:29	07:08 16:26	07:55 (G_III_05) 08:24 (G_III_08)	07:56 15:52	
8	04:52 21:24	05:34 20:43	06:25 19:37	06:58 (G_III_01) 07:18 (G_III_01)	07:14 18:27	07:09 16:24	07:56 (G_III_05) 08:28 (G_III_08)	07:57 15:52	
9	04:53 21:23	05:36 20:41	06:26 19:34	06:58 (G_III_01) 07:18 (G_III_01)	07:16 18:25	07:11 16:22	07:57 (G_III_05) 08:30 (G_III_08)	07:59 15:52	
10	04:54 21:22	05:37 20:39	06:28 19:32	06:58 (G_III_01) 07:18 (G_III_01)	07:18 18:22	07:13 16:21	07:59 (G_III_05) 08:32 (G_III_08)	08:00 15:52	
11	04:55 21:22	05:39 20:37	06:30 19:30	06:58 (G_III_01) 07:16 (G_III_01)	07:20 18:20	07:15 16:19	08:01 (G_III_05) 08:33 (G_III_08)	08:01 15:51	
12	04:56 21:21	05:41 20:35	06:31 19:27	06:59 (G_III_01) 07:15 (G_III_01)	07:21 18:18	07:17 16:18	08:03 (G_III_05) 08:34 (G_III_08)	08:02 15:51	
13	04:57 21:20	05:42 20:33	06:33 19:25	07:00 (G_III_01) 07:13 (G_III_01)	07:23 18:16	07:18 16:16	08:08 (G_III_05) 08:34 (G_III_08)	08:03 15:51	
14	04:58 21:19	05:44 20:31	06:35 19:23	07:02 (G_III_01) 07:47 (G_III_02)	07:25 18:13	07:20 16:15	08:12 (G_III_08) 08:35 (G_III_08)	08:04 15:51	
15	05:00 21:18	05:45 20:29	06:36 19:20	07:35 (G_III_02) 07:49 (G_III_02)	07:26 18:11	07:22 16:13	08:12 (G_III_08) 08:36 (G_III_08)	08:05 15:51	
16	05:01 21:17	05:47 20:27	06:38 19:18	07:32 (G_III_02) 08:18 (G_III_03)	07:28 18:09	07:24 16:12	08:13 (G_III_08) 08:36 (G_III_08)	08:06 15:51	
17	05:02 21:16	05:49 20:25	06:39 19:16	07:31 (G_III_02) 08:20 (G_III_03)	07:30 18:07	07:25 16:10	08:13 (G_III_08) 08:36 (G_III_08)	08:06 15:52	
18	05:03 21:15	05:50 20:23	06:41 19:13	07:29 (G_III_02) 08:22 (G_III_03)	07:32 18:05	07:27 16:09	08:16 (G_III_08) 08:37 (G_III_08)	08:07 15:52	
19	05:05 21:14	05:52 20:21	06:43 19:11	07:28 (G_III_02) 08:23 (G_III_03)	07:33 18:03	07:29 16:08	08:14 (G_III_08) 08:37 (G_III_08)	08:08 15:52	
20	05:06 21:12	05:54 20:19	06:44 19:09	07:28 (G_III_02) 08:24 (G_III_03)	07:35 18:00	07:31 16:06	08:14 (G_III_08) 08:37 (G_III_08)	08:09 15:52	
21	05:07 21:11	05:55 20:17	06:46 19:06	07:27 (G_III_02) 08:24 (G_III_03)	07:37 17:58	07:32 16:05	08:14 (G_III_08) 08:36 (G_III_08)	08:09 15:53	
22	05:09 21:10	05:57 20:15	06:48 19:04	07:27 (G_III_02) 08:25 (G_III_03)	07:39 17:56	07:34 16:04	08:15 (G_III_08) 08:36 (G_III_08)	08:10 15:53	
23	05:10 21:09	05:59 20:13	06:49 19:02	07:27 (G_III_02) 08:26 (G_III_03)	07:41 17:54	07:36 16:03	08:15 (G_III_08) 08:36 (G_III_08)	08:10 15:54	
24	05:11 21:07	06:00 20:10	06:51 18:59	07:26 (G_III_02) 08:25 (G_III_03)	07:42 17:52	07:37 16:02	08:16 (G_III_08) 08:36 (G_III_08)	08:11 15:54	
25	05:13 21:06	06:02 20:08	06:53 18:57	07:27 (G_III_02) 08:26 (G_III_03)	06:44 16:50	07:39 16:01	08:18 (G_III_08) 08:35 (G_III_08)	08:11 15:55	
26	05:14 21:04	06:03 20:06	06:54 18:55	07:27 (G_III_02) 08:25 (G_III_03)	06:46 16:48	07:40 16:00	08:18 (G_III_08) 08:35 (G_III_08)	08:11 15:56	
27	05:16 21:03	06:05 20:04	06:56 18:52	07:28 (G_III_02) 08:25 (G_III_03)	06:48 16:46	07:42 15:59	08:19 (G_III_08) 08:35 (G_III_08)	08:12 15:56	
28	05:17 21:01	06:07 20:02	06:58 18:50	07:29 (G_III_02) 08:25 (G_III_03)	06:50 16:44	07:44 15:58	08:21 (G_III_08) 08:35 (G_III_08)	08:12 15:57	
29	05:19 21:00	06:08 19:59	06:59 18:48	07:31 (G_III_02) 08:23 (G_III_03)	06:51 16:42	07:45 15:57	08:22 (G_III_08) 08:33 (G_III_08)	08:12 15:58	
30	05:20 20:58	06:10 19:57	07:01 18:45	07:45 (G_III_04) 08:23 (G_III_03)	06:53 16:40	07:47 15:56	08:24 (G_III_08) 08:32 (G_III_08)	08:12 15:59	
31	05:22 20:57	06:12 19:55			06:55 16:38	07:53 (G_III_05) 08:26 (G_III_05)		08:12 16:00	
Sonnenscheinstunden	503	454	381	331	266	243			
astr.max.mögl.Beschattung			1002	906	731	1			

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 Layout GII_33 Schattenrezeptor: IO 12 - Postbrücke 1

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	08:12 16:02	07:45 16:50	06:51 17:41	06:40 19:36		05:35 20:27	22	06:08 (G_II_13) 04:50 06:30 (G_II_13) 21:13
2	08:12 16:03	07:43 16:51	06:49 17:43	06:38 19:37		05:33 20:29	22	06:08 (G_II_13) 04:49 06:30 (G_II_13) 21:14
3	08:12 16:04	07:42 16:53	06:47 17:45	06:36 19:39		05:32 20:30	23	06:07 (G_II_13) 04:48 06:30 (G_II_13) 21:15
4	08:12 16:05	07:40 16:55	06:45 17:47	06:34 19:41		05:30 20:32	23	06:07 (G_II_13) 04:47 06:30 (G_II_13) 21:16
5	08:11 16:06	07:39 16:57	06:43 17:49	06:31 19:43		05:28 20:34	22	06:08 (G_II_13) 04:47 06:30 (G_II_13) 21:17
6	08:11 16:07	07:37 16:59	06:40 17:50	06:29 19:44		05:26 20:35	21	06:08 (G_II_13) 04:46 06:29 (G_II_13) 21:18
7	08:11 16:09	07:35 17:01	06:38 17:52	06:27 19:46		05:24 20:37	21	06:08 (G_II_13) 04:45 06:29 (G_II_13) 21:19
8	08:10 16:10	07:33 17:03	06:36 17:54	06:24 19:48		05:22 20:39	20	06:09 (G_II_13) 04:45 06:29 (G_II_13) 21:20
9	08:10 16:11	07:32 17:04	06:34 17:56	06:22 19:49		05:21 20:40	19	06:09 (G_II_13) 04:44 06:28 (G_II_13) 21:21
10	08:09 16:13	07:30 17:06	06:31 17:58	06:20 19:51		05:19 20:42	17	06:09 (G_II_13) 04:44 06:26 (G_II_13) 21:22
11	08:09 16:14	07:28 17:08	06:29 17:59	06:18 19:53		05:17 20:43	15	06:11 (G_II_13) 04:44 06:26 (G_II_13) 21:23
12	08:08 16:15	07:26 17:10	06:27 18:01	06:15 19:55		05:16 20:45	12	06:12 (G_II_13) 04:43 06:24 (G_II_13) 21:23
13	08:07 16:17	07:24 17:12	06:24 18:03	06:13 19:56		05:14 20:47	8	06:14 (G_II_13) 04:43 06:22 (G_II_13) 21:24
14	08:06 16:19	07:22 17:14	06:22 18:05	06:11 19:58		05:12 20:48		04:43 21:24
15	08:06 16:20	07:20 17:16	06:20 18:06	06:09 20:00		05:11 20:50		04:43 21:25
16	08:05 16:22	07:18 17:18	06:18 18:08	06:07 20:01		05:09 20:51		04:42 21:26
17	08:04 16:23	07:16 17:19	06:15 18:10	06:04 20:03		05:08 20:53		04:42 21:26
18	08:03 16:25	07:14 17:21	06:13 18:12	06:02 20:05		05:06 20:54		04:42 21:26
19	08:02 16:27	07:12 17:23	06:11 18:13	06:00 20:07		05:05 20:56		04:42 21:27
20	08:01 16:28	07:10 17:25	06:08 18:15	05:58 20:08		05:03 20:57		04:42 21:27
21	08:00 16:30	07:08 17:27	06:06 18:17	05:56 20:10		05:02 20:59		04:43 21:27
22	07:59 16:32	07:06 17:29	06:04 18:19	05:54 20:12		05:01 21:00		04:43 21:28
23	07:57 16:33	07:04 17:31	06:01 18:20	05:52 20:13		04:59 21:02		04:43 21:28
24	07:56 16:35	07:02 17:32	05:59 18:22	05:49 20:15		04:58 21:03		04:43 21:28
25	07:55 16:37	07:00 17:34	05:57 18:24	05:47 20:17	06:18 (G_II_13)	04:57		04:44 21:28
26	07:54 16:39	06:58 17:36	05:54 18:25	05:45 20:19	4 06:22 (G_II_13) 06:14 (G_II_13)	21:04 04:56		21:04 21:28
27	07:52 16:40	06:56 17:38	05:52 18:27	05:43 20:20	11 06:25 (G_II_13) 06:12 (G_II_13)	21:06 04:55		21:06 21:28
28	07:51 16:42	06:54 17:40	05:50 18:29	05:41 20:22	15 06:27 (G_II_13) 06:10 (G_II_13)	21:07 04:54		21:07 21:28
29	07:50 16:44		06:47 19:31	05:39 20:24	18 06:28 (G_II_13) 06:09 (G_II_13)	21:08 04:53		21:08 21:28
30	07:48 16:46		06:45 19:32	05:37 20:25	20 06:29 (G_II_13) 06:09 (G_II_13)	21:10 04:52		21:10 21:28
31	07:47 16:48		06:43 19:34		21 06:30 (G_II_13)	21:11		21:11 21:27
Sonnenscheinstunden	258	277	367	416		486		500
astr.max.mögl.Beschattung				89		245		

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 Layout GII_33 Schattenrezeptor: IO 12 - Postbrücke 1

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

	Juli	August	September	Oktober	November	Dezember
1	04:47 21:27	05:23 20:55	06:22 (G_II_13) 19:53	06:13 18:43	06:57 16:37	07:48 15:56
2	04:47 21:27	05:25 20:53	06:21 (G_II_13) 19:51	06:15 18:41	06:59 16:35	07:49 15:55
3	04:48 21:26	05:26 20:52	06:19 (G_II_13) 19:48	06:17 18:38	07:00 16:33	07:51 15:55
4	04:49 21:26	05:28 20:50	06:19 (G_II_13) 19:46	06:18 18:36	07:02 16:31	07:52 15:54
5	04:50 21:26	05:30 20:48	06:18 (G_II_13) 19:44	06:20 18:34	07:04 16:29	07:54 15:54
6	04:51 21:25	05:31 20:46	06:18 (G_II_13) 19:41	06:22 18:32	07:06 16:28	07:55 15:53
7	04:51 21:24	05:33 20:45	06:17 (G_II_13) 19:39	06:23 18:29	07:08 16:26	07:56 15:53
8	04:52 21:24	05:34 20:43	06:17 (G_II_13) 19:37	06:25 18:27	07:09 16:24	07:57 15:52
9	04:53 21:23	05:36 20:41	06:16 (G_II_13) 19:34	06:27 18:25	07:11 16:23	07:59 15:52
10	04:54 21:22	05:38 20:39	06:17 (G_II_13) 19:32	06:28 18:22	07:13 16:21	08:00 15:52
11	04:55 21:22	05:39 20:37	06:16 (G_II_13) 19:30	06:30 18:20	07:15 16:19	08:01 15:52
12	04:56 21:21	05:41 20:35	06:17 (G_II_13) 19:27	06:31 18:18	07:17 16:18	08:02 15:52
13	04:58 21:20	05:42 20:33	06:17 (G_II_13) 19:25	06:33 18:16	07:18 16:16	08:03 15:51
14	04:59 21:19	05:44 20:31	06:18 (G_II_13) 19:23	06:35 18:14	07:20 16:15	08:04 15:51
15	05:00 21:18	05:46 20:29	06:18 (G_II_13) 19:20	06:36 18:11	07:22 16:13	08:05 15:52
16	05:01 21:17	05:47 20:27	06:20 (G_II_13) 19:18	06:38 18:09	07:24 16:12	08:06 15:52
17	05:02 21:16	05:49 20:25	06:21 (G_II_13) 19:16	06:40 18:07	07:25 16:11	08:06 15:52
18	05:04 21:15	05:51 20:23	06:31 (G_II_13) 19:13	06:41 18:05	07:27 16:09	08:07 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:34 18:03	07:29 16:08	08:08 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:01	07:31 16:07	08:08 15:53
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 16:05	08:09 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:34 16:04	08:10 15:54
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	07:36 16:03	08:10 15:54
24	05:12 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 16:02	08:11 15:55
25	05:13 21:06	06:02 20:08	06:53 18:57	06:44 16:50	07:39 16:01	08:11 15:55
26	05:14 21:04	06:04 20:06	06:54 18:55	06:46 16:48	07:40 16:00	08:11 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 16:46	07:42 15:59	08:12 15:57
28	05:17 21:01	06:07 20:02	06:58 18:50	06:50 16:44	07:44 15:58	08:12 15:58
29	05:19 21:00	06:09 19:59	06:59 18:48	06:51 16:42	07:45 15:57	08:12 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40	07:47 15:57	08:12 15:59
31	05:22 20:57	06:12 19:55	06:55 16:38	06:55 16:38	07:49 16:00	08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
astr.max.mögl.Beschattung	11	322				

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	Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 13 - Weichensdorf, Dorfstraße 53
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	08:12	15:00 (G_II_04)	07:45	15:30 (G_III_10)	06:51	16:18 (G_III_07)	06:40	18:20 (G_III_04)	05:35	04:49	19:42 (G_III_01)
2	08:12	15:00 (G_II_04)	07:43	15:30 (G_III_10)	06:49	16:18 (G_III_07)	06:38	18:20 (G_III_04)	05:33	04:49	19:43 (G_III_01)
3	08:12	15:01 (G_II_04)	07:42	15:32 (G_III_10)	06:47	16:21 (G_III_07)	06:36	18:20 (G_III_04)	05:31	19:45 (G_III_01)	04:48
4	08:11	15:02 (G_II_04)	07:40	15:33 (G_III_10)	06:45	16:24 (G_III_07)	06:33	18:21 (G_III_04)	05:29	19:42 (G_III_01)	04:47
5	08:11	15:02 (G_II_04)	07:38	15:34 (G_III_10)	06:42	16:34 (G_III_07)	06:31	18:21 (G_III_04)	05:27	19:40 (G_III_01)	04:46
6	08:11	15:03 (G_II_04)	07:37	15:35 (G_III_10)	06:40	16:34 (G_III_07)	06:29	18:21 (G_III_04)	05:26	19:39 (G_III_01)	04:46
7	08:10	15:03 (G_II_04)	07:35	15:37 (G_III_10)	06:38	16:34 (G_III_07)	06:26	18:22 (G_III_04)	05:24	19:38 (G_III_01)	04:45
8	08:10	15:03 (G_II_04)	07:33	15:48 (G_III_10)	06:36	17:20 (G_III_06)	06:24	18:24 (G_III_04)	05:22	19:37 (G_III_01)	04:45
9	08:10	15:04 (G_II_04)	07:31	15:56 (G_III_07)	06:33	17:16 (G_III_06)	06:22	18:26 (G_III_04)	05:20	19:36 (G_III_01)	04:44
10	08:09	15:05 (G_II_04)	07:30	16:01 (G_III_07)	06:31	17:14 (G_III_06)	06:20	18:28 (G_III_04)	05:19	19:35 (G_III_01)	04:44
11	08:08	15:05 (G_II_04)	07:28	16:01 (G_III_07)	06:29	17:13 (G_III_06)	06:17	18:29 (G_III_04)	05:17	19:35 (G_III_01)	04:43
12	08:08	15:06 (G_II_04)	07:26	16:30 (G_III_07)	06:26	17:11 (G_III_06)	06:15	18:29 (G_III_04)	05:15	19:35 (G_III_01)	04:43
13	08:07	15:07 (G_II_04)	07:24	16:37 (G_III_07)	06:24	17:10 (G_III_06)	06:13	18:29 (G_III_04)	05:14	19:34 (G_III_01)	04:43
14	08:06	15:08 (G_II_04)	07:22	16:42 (G_III_07)	06:22	17:10 (G_III_06)	06:11	18:29 (G_III_04)	05:12	19:34 (G_III_01)	04:42
15	08:05	15:09 (G_II_04)	07:20	16:49 (G_III_07)	06:20	17:09 (G_III_06)	06:08	18:29 (G_III_04)	05:10	19:35 (G_III_01)	04:42
16	08:05	15:11 (G_II_04)	07:18	16:59 (G_III_07)	06:17	17:09 (G_III_06)	06:06	18:29 (G_III_04)	05:09	19:34 (G_III_01)	04:42
17	08:04	15:11 (G_II_04)	07:16	16:42 (G_III_07)	06:15	17:10 (G_III_06)	06:04	18:29 (G_III_04)	05:07	19:34 (G_III_01)	04:42
18	08:03	15:14 (G_II_04)	07:14	16:17 (G_III_07)	06:13	17:09 (G_III_06)	06:02	18:29 (G_III_04)	05:06	19:35 (G_III_01)	04:42
19	08:02	15:29 (G_III_10)	07:12	16:15 (G_III_07)	06:10	17:10 (G_III_06)	06:00	19:00 (G_III_02)	05:04	19:34 (G_III_01)	04:42
20	08:01	15:29 (G_III_10)	07:10	16:15 (G_III_07)	06:08	17:11 (G_III_06)	05:58	19:02 (G_III_02)	05:03	19:35 (G_III_01)	04:42
21	08:00	15:29 (G_III_10)	07:08	16:15 (G_III_07)	06:06	17:12 (G_III_06)	05:55	19:04 (G_III_02)	05:02	19:35 (G_III_01)	04:42
22	07:58	15:28 (G_III_10)	07:06	16:15 (G_III_07)	06:03	17:15 (G_III_06)	05:53	19:13 (G_III_02)	05:00	19:36 (G_III_01)	04:42
23	07:57	15:28 (G_III_10)	07:04	16:15 (G_III_07)	06:01	17:15 (G_III_06)	05:51	19:13 (G_III_02)	04:59	19:36 (G_III_01)	04:43
24	07:56	15:28 (G_III_10)	07:02	16:15 (G_III_07)	05:59	17:17 (G_III_06)	05:49	19:16 (G_III_02)	04:58	19:36 (G_III_01)	04:43
25	07:55	15:28 (G_III_10)	07:00	16:15 (G_III_07)	05:56	17:18 (G_III_06)	05:47	19:16 (G_III_02)	04:57	19:36 (G_III_01)	04:43
26	07:53	15:28 (G_III_10)	06:58	16:15 (G_III_07)	05:54	17:25 (G_III_06)	05:45	19:18 (G_III_02)	04:55	19:37 (G_III_01)	04:44
27	07:52	15:28 (G_III_10)	06:55	16:16 (G_III_07)	05:52	17:23 (G_III_06)	05:43	19:18 (G_III_02)	04:54	19:38 (G_III_01)	04:44
28	07:51	15:29 (G_III_10)	06:53	16:17 (G_III_07)	05:49	17:22 (G_III_06)	05:41	19:18 (G_III_02)	04:53	19:38 (G_III_01)	04:45
29	07:49	15:29 (G_III_10)	06:51	16:17 (G_III_07)	05:47	17:22 (G_III_06)	05:39	19:18 (G_III_02)	04:52	19:40 (G_III_01)	04:45
30	07:48	15:29 (G_III_10)	06:49	16:17 (G_III_07)	05:45	17:22 (G_III_06)	05:37	19:18 (G_III_02)	04:51	19:41 (G_III_01)	04:46
31	07:46	15:30 (G_III_10)	06:47	16:17 (G_III_07)	05:43	17:22 (G_III_06)	05:35	19:18 (G_III_02)	04:50	19:41 (G_III_01)	04:46
Sonnenscheinstunden		258	277	367	416	466	486	500	500	500	500
astr.max.mögl.Beschattung		692	708	637	661	755	78				

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 Layout GIII_33 Schattenrezeptor: IO 13 - Weichensdorf, Dorfstraße 53
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 Sonneneinstrahlungsrichtung
- Die Windenergieanlage/n ist/sind immer in Betrieb

Juli		August		September		Oktober		November		Dezember	
1	04:46	05:23	19:45 (G.III_01)	06:13	18:58 (G.III_02)	07:02	17:51 (G.III_06)	06:57	07:48	14:47 (G.II_04)	
2	04:47	05:25	30 20:15 (G.III_01)	19:53	19:21 (G.III_02)	18:43	22 18:13 (G.III_06)	16:36	15:56	19 15:06 (G.II_04)	
3	04:48	05:26	29 20:14 (G.III_01)	19:50	19:21 (G.III_02)	18:40	21 18:11 (G.III_06)	16:34	15:55	19 15:07 (G.II_04)	
4	04:48	05:28	28 20:14 (G.III_01)	19:48	18:23 (G.III_04)	07:06	17:51 (G.III_06)	07:00	15:11 (G.III_10)	14:47 (G.II_04)	
5	04:49	05:29	27 20:13 (G.III_01)	19:46	19:19 (G.III_02)	18:38	19 18:10 (G.III_06)	16:33	15:14 (G.III_10)	15:54	
6	04:50	05:31	26 20:12 (G.III_01)	19:43	18:21 (G.III_04)	07:07	17:53 (G.III_06)	07:02	15:07 (G.III_10)	15:52	
7	04:51	05:32	25 20:11 (G.III_01)	19:41	19:18 (G.III_02)	18:36	15 18:08 (G.III_06)	16:31	15:19 (G.III_10)	15:54	
8	04:52	05:34	24 20:10 (G.III_01)	19:39	18:19 (G.III_04)	07:09	17:55 (G.III_06)	07:04	15:05 (G.III_10)	15:53	
9	04:53	05:36	23 20:08 (G.III_01)	19:37	18:17 (G.III_04)	07:11	18:06 (G.III_06)	16:29	15:21 (G.III_10)	15:53	
10	04:54	05:37	22 20:07 (G.III_01)	19:34	18:16 (G.III_04)	07:13	17:03 (G.III_07)	07:11	15:03 (G.III_10)	15:55	
11	04:55	05:39	21 20:06 (G.III_01)	19:32	18:15 (G.III_04)	07:14	17:04 (G.III_07)	16:22	15:22 (G.III_10)	15:53	
12	04:56	05:40	20 20:05 (G.III_01)	19:30	18:14 (G.III_04)	07:16	17:05 (G.III_07)	16:21	15:02 (G.III_10)	15:52	
13	04:57	05:42	19 20:04 (G.III_01)	19:29	18:13 (G.III_04)	07:18	17:06 (G.III_07)	16:20	15:24 (G.III_10)	15:52	
14	04:58	05:44	18 20:03 (G.III_01)	19:28	18:12 (G.III_04)	07:20	17:07 (G.III_07)	16:19	15:01 (G.III_10)	15:51	
15	04:59	05:45	17 20:02 (G.III_01)	19:27	18:11 (G.III_04)	07:22	17:08 (G.III_07)	16:18	15:26 (G.III_10)	15:51	
16	05:01	05:47	16 20:01 (G.III_01)	19:26	18:10 (G.III_04)	07:24	17:09 (G.III_07)	16:17	15:27 (G.III_10)	15:51	
17	05:02	05:49	15 20:00 (G.III_01)	19:25	18:09 (G.III_04)	07:26	17:10 (G.III_07)	16:16	15:28 (G.III_10)	15:51	
18	05:03	05:50	14 20:00 (G.III_01)	19:24	18:08 (G.III_04)	07:28	17:11 (G.III_07)	16:15	15:29 (G.III_10)	15:51	
19	05:04	05:52	13 20:00 (G.III_01)	19:23	18:07 (G.III_04)	07:30	17:12 (G.III_07)	16:14	15:30 (G.III_10)	15:51	
20	05:06	05:53	12 20:00 (G.III_01)	19:22	18:06 (G.III_04)	07:32	17:13 (G.III_07)	16:13	15:31 (G.III_10)	15:51	
21	05:07	05:55	11 20:00 (G.III_01)	19:21	18:05 (G.III_04)	07:34	17:14 (G.III_07)	16:12	15:32 (G.III_10)	15:51	
22	05:08	05:57	10 20:00 (G.III_01)	19:20	18:04 (G.III_04)	07:36	17:15 (G.III_07)	16:11	15:33 (G.III_10)	15:51	
23	05:10	05:58	9 20:00 (G.III_01)	19:19	18:03 (G.III_04)	07:38	17:16 (G.III_07)	16:10	15:34 (G.III_10)	15:51	
24	05:11	06:00	8 20:00 (G.III_01)	19:18	18:02 (G.III_04)	07:40	17:17 (G.III_07)	16:09	15:35 (G.III_10)	15:51	
25	05:13	06:02	7 20:00 (G.III_01)	19:17	18:01 (G.III_04)	07:42	17:18 (G.III_07)	16:08	15:36 (G.III_10)	15:51	
26	05:14	06:03	6 20:00 (G.III_01)	19:16	18:00 (G.III_04)	07:44	17:19 (G.III_07)	16:07	15:37 (G.III_10)	15:51	
27	05:16	06:05	5 20:00 (G.III_01)	19:15	17:59 (G.III_04)	07:46	17:20 (G.III_07)	16:06	15:38 (G.III_10)	15:51	
28	05:17	06:07	4 20:00 (G.III_01)	19:14	17:58 (G.III_04)	07:48	17:21 (G.III_07)	16:05	15:39 (G.III_10)	15:51	
29	05:18	06:08	3 20:00 (G.III_01)	19:13	17:57 (G.III_04)	07:50	17:22 (G.III_07)	16:04	15:40 (G.III_10)	15:51	
30	05:20	06:10	2 20:00 (G.III_01)	19:12	17:56 (G.III_04)	07:52	17:23 (G.III_07)	16:03	15:41 (G.III_10)	15:51	
31	05:21	06:11	1 20:00 (G.III_01)	19:11	17:55 (G.III_04)	07:54	17:24 (G.III_07)	16:02	15:42 (G.III_10)	15:51	
Sonnenscheinstunden		503	621	454	428	934	772	616	243	630	
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)	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM) Schattenanfang (WEA mit erstem Schatten)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 14 - Weichensdorf, Dorfstraße 48

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni
1	08:12 16:01 21	15:01 (G_III_10) 07:45 15:22 (G_III_10) 16:49 24	15:48 (G_III_07) 06:51 16:12 (G_III_07) 17:41 23	16:46 (G_III_06) 06:40 17:09 (G_III_04) 19:35 15	18:34 (G_III_02) 05:35 18:49 (G_III_02) 20:27 21:13	04:49 21:13 21:13
2	08:12 16:02 21	15:02 (G_III_10) 07:43 15:23 (G_III_10) 16:51 26	15:47 (G_III_07) 06:49 16:13 (G_III_07) 17:43 27	16:45 (G_III_06) 06:38 17:12 (G_III_04) 19:37 11	18:35 (G_III_02) 05:33 18:46 (G_III_02) 20:28 21:14	04:49 21:14 21:14
3	08:12 16:03 22	15:02 (G_III_10) 07:42 15:24 (G_III_10) 16:53 26	15:48 (G_III_07) 06:47 16:14 (G_III_07) 17:45 28	16:46 (G_III_06) 06:36 17:14 (G_III_04) 19:39 28	18:35 (G_III_02) 05:31 18:46 (G_III_02) 20:29 21:15	04:48 21:15 21:15
4	08:11 16:04 22	15:03 (G_III_10) 07:40 15:25 (G_III_10) 16:55 27	15:47 (G_III_07) 06:45 16:14 (G_III_07) 17:47 29	16:47 (G_III_06) 06:33 17:16 (G_III_04) 19:41 29	18:36 (G_III_02) 05:29 18:47 (G_III_02) 20:30 21:16	04:47 21:16 21:16
5	08:11 16:06 22	15:03 (G_III_10) 07:38 15:25 (G_III_10) 16:57 27	15:47 (G_III_07) 06:42 16:14 (G_III_07) 17:48 29	16:48 (G_III_06) 06:31 17:17 (G_III_04) 19:42 29	18:37 (G_III_02) 05:27 18:48 (G_III_02) 20:31 21:17	04:46 21:17 21:17
6	08:11 16:07 23	15:03 (G_III_10) 07:37 15:26 (G_III_10) 16:58 27	15:47 (G_III_07) 06:40 16:14 (G_III_07) 17:50 28	16:49 (G_III_06) 06:29 17:17 (G_III_04) 19:44 28	18:38 (G_III_02) 05:26 18:49 (G_III_02) 20:32 21:18	04:46 21:18 21:18
7	08:10 16:08 23	15:03 (G_III_10) 07:35 15:26 (G_III_10) 17:00 27	15:47 (G_III_07) 06:38 16:14 (G_III_07) 17:52 28	16:50 (G_III_06) 06:26 17:18 (G_III_04) 19:46 28	18:39 (G_III_02) 05:24 18:50 (G_III_02) 20:33 21:19	04:45 21:19 21:19
8	08:10 16:09 23	15:03 (G_III_10) 07:33 15:26 (G_III_10) 17:02 25	15:49 (G_III_07) 06:36 16:14 (G_III_07) 17:54 28	16:50 (G_III_06) 06:24 17:18 (G_III_04) 19:48 7	19:08 (G_III_01) 05:22 19:15 (G_III_01) 20:34 21:20	04:45 21:20 21:20
9	08:10 16:11 23	15:04 (G_III_10) 07:31 15:27 (G_III_10) 17:04 25	15:49 (G_III_07) 06:33 16:14 (G_III_07) 17:55 29	16:49 (G_III_06) 06:22 17:18 (G_III_04) 19:49 15	19:04 (G_III_01) 05:20 19:19 (G_III_01) 20:40 21:21	04:44 21:21 21:21
10	08:09 16:12 23	15:04 (G_III_10) 07:30 15:27 (G_III_10) 17:06 23	15:50 (G_III_07) 06:31 16:13 (G_III_07) 17:57 29	16:49 (G_III_06) 06:20 17:18 (G_III_04) 19:51 19	19:01 (G_III_01) 05:19 19:20 (G_III_01) 20:42 21:22	04:44 21:22 21:22
11	08:08 16:14 24	15:04 (G_III_10) 07:28 15:28 (G_III_10) 17:08 22	15:50 (G_III_07) 06:29 16:12 (G_III_07) 17:59 29	16:49 (G_III_06) 06:17 17:18 (G_III_04) 19:53 22	18:59 (G_III_01) 05:17 19:21 (G_III_01) 20:43 21:23	04:43 21:23 21:23
12	08:08 16:15 23	15:05 (G_III_10) 07:26 15:28 (G_III_10) 17:10 19	15:52 (G_III_07) 06:26 16:11 (G_III_07) 18:01 28	16:48 (G_III_06) 06:15 17:16 (G_III_04) 19:54 24	18:58 (G_III_01) 05:15 19:22 (G_III_01) 20:45 21:24	04:43 21:24 21:24
13	08:07 16:17 23	15:06 (G_III_10) 07:24 15:29 (G_III_10) 17:12 17	15:53 (G_III_07) 06:24 16:10 (G_III_07) 18:03 27	16:49 (G_III_06) 06:13 17:16 (G_III_04) 19:56 26	18:57 (G_III_01) 05:14 19:23 (G_III_01) 20:46 21:25	04:43 21:25 21:25
14	08:06 16:18 23	15:06 (G_III_10) 07:22 15:29 (G_III_10) 17:13 13	15:55 (G_III_07) 06:22 16:08 (G_III_07) 18:04 25	16:50 (G_III_06) 06:11 17:15 (G_III_04) 19:58 28	18:56 (G_III_01) 05:12 19:24 (G_III_01) 20:48 21:26	04:42 21:26 21:26
15	08:05 16:20 22	15:07 (G_III_10) 07:20 15:29 (G_III_10) 17:15 5	15:59 (G_III_07) 06:20 16:04 (G_III_07) 18:06 24	16:50 (G_III_06) 06:08 17:14 (G_III_04) 20:00 29	18:54 (G_III_01) 05:10 19:23 (G_III_01) 20:50 21:27	04:42 21:27 21:27
16	08:05 16:21 22	15:08 (G_III_10) 07:18 15:30 (G_III_10) 17:17 17	16:07 18:08 21	16:51 (G_III_06) 06:06 17:12 (G_III_04) 20:01 29	18:54 (G_III_01) 05:09 19:23 (G_III_01) 20:51 21:28	04:42 21:28 21:28
17	08:04 16:23 22	15:08 (G_III_10) 07:16 15:30 (G_III_10) 17:19 18	16:05 18:10 14	16:53 (G_III_06) 06:04 17:11 (G_III_04) 20:03 30	18:53 (G_III_01) 05:07 19:23 (G_III_01) 20:53 21:29	04:42 21:29 21:29
18	08:03 16:24 21	15:08 (G_III_10) 07:14 15:29 (G_III_10) 17:21 19	16:06 18:11 14	16:54 (G_III_06) 06:02 17:08 (G_III_04) 20:05 30	18:53 (G_III_01) 05:06 19:23 (G_III_01) 20:54 21:30	04:42 21:30 21:30
19	08:02 16:26 20	15:09 (G_III_10) 07:12 15:29 (G_III_10) 17:23 20	16:06 18:13 2	17:00 (G_III_06) 06:00 17:02 (G_III_04) 20:06 30	18:53 (G_III_01) 05:04 19:23 (G_III_01) 20:56 21:31	04:42 21:31 21:31
20	08:01 16:28 19	15:10 (G_III_10) 07:10 15:29 (G_III_10) 17:25 21	16:08 18:15 10	17:40 (G_III_06) 05:58 17:50 (G_III_02) 20:08 30	18:53 (G_III_01) 05:03 19:23 (G_III_01) 20:57 21:32	04:42 21:32 21:32
21	08:00 16:30 16	15:12 (G_III_10) 07:08 15:28 (G_III_10) 17:26 5	16:06 16:59 (G_III_06) 18:17 15	17:36 (G_III_06) 05:55 17:51 (G_III_02) 20:10 29	18:53 (G_III_01) 05:02 19:22 (G_III_01) 20:59 21:33	04:42 21:33 21:33
22	07:58 16:31 14	15:13 (G_III_10) 07:06 15:27 (G_III_10) 17:28 10	16:06 17:01 (G_III_06) 18:18 18	17:35 (G_III_06) 05:53 17:53 (G_III_02) 20:11 28	18:54 (G_III_01) 05:00 19:22 (G_III_01) 21:00 21:34	04:42 21:34 21:34
23	07:57 16:33 11	15:15 (G_III_10) 07:04 15:26 (G_III_10) 17:30 14	16:06 17:03 (G_III_06) 18:20 20	17:34 (G_III_06) 05:51 17:54 (G_III_02) 20:13 27	18:54 (G_III_01) 04:59 19:21 (G_III_01) 21:01 21:35	04:43 21:35 21:35
24	07:56 16:35 6	15:18 (G_III_10) 07:02 15:24 (G_III_10) 17:32 18	16:06 17:06 (G_III_06) 18:22 22	17:32 (G_III_06) 05:49 17:54 (G_III_02) 20:15 25	18:55 (G_III_01) 04:58 19:20 (G_III_01) 21:03 21:36	04:43 21:36 21:36
25	07:55 16:36 5	15:18 (G_III_10) 07:00 15:26 (G_III_10) 17:34 20	16:06 17:07 (G_III_06) 18:23 23	17:32 (G_III_06) 05:47 17:55 (G_III_02) 20:17 23	18:56 (G_III_01) 04:57 19:19 (G_III_01) 21:04 21:37	04:43 21:37 21:37
26	07:53 16:38 11	15:19 (G_III_10) 06:58 15:27 (G_III_10) 17:36 21	16:06 17:07 (G_III_06) 18:25 23	17:32 (G_III_06) 05:45 17:55 (G_III_02) 20:18 20	18:57 (G_III_01) 04:55 19:17 (G_III_01) 21:06 21:38	04:44 21:38 21:38
27	07:52 16:40 15	15:21 (G_III_10) 06:55 15:29 (G_III_10) 17:37 21	16:06 17:07 (G_III_06) 18:27 23	17:31 (G_III_06) 05:43 17:54 (G_III_02) 20:20 17	18:58 (G_III_01) 04:54 19:15 (G_III_01) 21:07 21:39	04:44 21:39 21:39
28	07:51 16:42 18	15:21 (G_III_10) 06:53 16:09 (G_III_07) 17:39 21	16:06 17:07 (G_III_06) 18:29 23	17:31 (G_III_06) 05:41 17:54 (G_III_02) 20:22 12	19:01 (G_III_01) 04:53 19:13 (G_III_01) 21:08 21:40	04:45 21:40 21:40
29	07:49 16:44 21	15:22 (G_III_10) 06:51 16:10 (G_III_07) 17:40 30	16:07 17:08 (G_III_06) 18:30 21	18:32 (G_III_02) 05:39 18:53 (G_III_02) 20:23 20	19:02 (G_III_01) 04:52 19:14 (G_III_01) 21:09 21:41	04:45 21:41 21:41
30	07:48 16:45 22	15:23 (G_III_10) 06:50 16:11 (G_III_07) 17:41 31	16:07 17:09 (G_III_06) 18:31 18	18:31 (G_III_02) 05:37 18:51 (G_III_02) 20:25 18	19:03 (G_III_01) 04:51 19:15 (G_III_01) 21:10 21:42	04:46 21:42 21:42
31	07:46 16:47 24	15:24 (G_III_10) 06:49 16:12 (G_III_07) 17:42 1	16:07 17:10 (G_III_06) 18:32 19	18:32 (G_III_02) 05:35 18:50 (G_III_02) 20:27 18	19:04 (G_III_01) 04:50 19:16 (G_III_01) 21:11 21:43	04:46 21:43 21:43
Sonnenscheinstunden	258	277	367	416	486	500
astr. max. mögl. Beschattung	605	463	702	526		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 14 - Weichensdorf, Dorfstraße 48
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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

		Juli	August		September		Oktober		November		Dezember				
	1	04:46 21:27	05:23 20:55		06:13 19:53	22	18:58 (G_III_01) 19:20 (G_III_01)	07:02 18:43	27	17:29 (G_III_04) 17:56 (G_III_04)	06:57 16:36	15:19 (G_III_07) 15:43 (G_III_07)	07:48 15:56	24	14:46 (G_III_10) 15:10 (G_III_10)
	2	04:47 21:27	05:25 20:53		06:15 19:50	19	19:00 (G_III_01) 19:19 (G_III_01)	07:04 18:40	28	17:27 (G_III_04) 17:55 (G_III_04)	06:58 16:34	15:18 (G_III_07) 15:43 (G_III_07)	07:49 15:55	24	14:47 (G_III_10) 15:11 (G_III_10)
	3	04:48 21:26	05:26 20:52		06:16 19:48	15	19:01 (G_III_01) 19:16 (G_III_01)	07:06 18:38	29	17:27 (G_III_04) 17:56 (G_III_04)	07:00 16:33	15:17 (G_III_07) 15:43 (G_III_07)	07:51 15:54	23	14:47 (G_III_10) 15:10 (G_III_10)
	4	04:48 21:26	05:28 20:50		06:18 19:46	7	19:05 (G_III_01) 19:12 (G_III_01)	07:07 18:36	29	17:27 (G_III_04) 17:56 (G_III_04)	07:02 16:31	15:17 (G_III_07) 15:43 (G_III_07)	07:52 15:54	23	14:48 (G_III_10) 15:11 (G_III_10)
	5	04:49 21:25	05:29 20:48		06:20 19:43		19:20 (G_III_01) 19:43	07:09 18:33	28	17:27 (G_III_04) 17:55 (G_III_04)	07:04 16:29	15:17 (G_III_07) 15:44 (G_III_07)	07:53 15:53	23	14:48 (G_III_10) 15:11 (G_III_10)
	6	04:50 21:25	05:31 20:46		06:21 19:41		19:26 (G_III_01) 19:41	07:11 18:31	28	17:26 (G_III_04) 17:54 (G_III_04)	07:06 16:27	15:17 (G_III_07) 15:44 (G_III_07)	07:55 15:53	23	14:49 (G_III_10) 15:12 (G_III_10)
	7	04:51 21:24	05:32 20:44		06:23 19:39		19:26 (G_III_01) 19:39	07:13 18:29	27	17:26 (G_III_06) 17:53 (G_III_04)	07:07 16:25	15:17 (G_III_07) 15:44 (G_III_07)	07:56 15:52	22	14:50 (G_III_10) 15:12 (G_III_10)
	8	04:52 21:24	05:34 20:43		06:25 19:37		19:24 (G_III_01) 19:37	07:14 18:27	27	17:24 (G_III_06) 17:53 (G_III_04)	07:09 16:24	15:18 (G_III_07) 15:44 (G_III_07)	07:57 15:52	22	14:50 (G_III_10) 15:12 (G_III_10)
	9	04:53 21:23	05:36 20:41		06:26 19:34		19:22 (G_III_01) 19:34	07:16 18:24	29	17:22 (G_III_06) 17:52 (G_III_04)	07:11 16:22	15:18 (G_III_07) 15:43 (G_III_07)	07:58 15:52	22	14:50 (G_III_10) 15:12 (G_III_10)
	10	04:54 21:22	05:37 20:39		06:28 19:32	9	18:29 (G_III_02) 18:38 (G_III_02)	07:18 18:22	30	17:20 (G_III_06) 17:49 (G_III_04)	07:13 16:21	15:19 (G_III_07) 15:43 (G_III_07)	08:00 15:51	21	14:52 (G_III_10) 15:13 (G_III_10)
	11	04:55 21:21	05:39 20:37		06:29 19:30	15	18:26 (G_III_02) 18:41 (G_III_02)	07:19 18:20	29	17:20 (G_III_06) 17:47 (G_III_04)	07:15 16:19	15:19 (G_III_07) 15:43 (G_III_07)	08:01 15:51	21	14:52 (G_III_10) 15:13 (G_III_10)
	12	04:56 21:21	05:40 20:35		06:31 19:27	17	18:25 (G_III_02) 18:42 (G_III_02)	07:21 18:18	27	17:19 (G_III_06) 17:45 (G_III_04)	07:16 16:17	15:20 (G_III_07) 15:42 (G_III_07)	08:02 15:51	21	14:53 (G_III_10) 15:13 (G_III_10)
	13	04:57 21:20	05:42 20:33		06:33 19:25	20	18:23 (G_III_02) 18:43 (G_III_02)	07:23 18:15	26	17:19 (G_III_06) 17:41 (G_III_06)	07:18 16:16	15:21 (G_III_07) 15:41 (G_III_07)	08:03 15:51	20	14:53 (G_III_10) 15:14 (G_III_10)
	14	04:58 21:19	05:44 20:31	6	19:11 (G_III_01) 19:17 (G_III_01)	21	18:22 (G_III_02) 18:43 (G_III_02)	07:25 18:13	22	17:18 (G_III_06) 17:40 (G_III_06)	07:20 16:14	15:23 (G_III_07) 15:43 (G_III_07)	08:04 15:51	21	14:54 (G_III_10) 15:14 (G_III_10)
	15	04:59 21:18	05:45 20:29	14	19:07 (G_III_01) 19:21 (G_III_01)	23	18:20 (G_III_02) 19:05 (G_III_01)	07:26 19:20	22	17:18 (G_III_06) 17:39 (G_III_06)	07:22 16:13	15:24 (G_III_07) 15:43 (G_III_07)	08:05 15:51	20	14:55 (G_III_10) 15:14 (G_III_10)
	16	05:01 21:17	05:47 20:27	17	19:01 (G_III_01) 19:22 (G_III_01)	23	18:38 (G_III_02) 19:03 (G_III_01)	07:28 19:18	21	17:18 (G_III_06) 17:39 (G_III_06)	07:23 16:11	15:27 (G_III_07) 15:43 (G_III_07)	08:05 15:51	19	14:54 (G_III_10) 15:14 (G_III_10)
	17	05:02 21:16	05:49 20:25	17	19:03 (G_III_01) 19:24 (G_III_01)	23	18:20 (G_III_02) 19:02 (G_III_01)	07:30 19:15	21	17:19 (G_III_06) 17:38 (G_III_06)	07:25 16:10	15:30 (G_III_07) 15:43 (G_III_07)	08:06 15:51	20	14:55 (G_III_10) 15:14 (G_III_10)
	18	05:03 21:15	05:50 20:23	21	19:02 (G_III_01) 19:25 (G_III_01)	23	19:01 (G_III_01) 19:26 (G_III_01)	07:32 18:05	19	17:20 (G_III_06) 17:36 (G_III_06)	07:27 16:09	15:32 (G_III_07) 15:48 (G_III_07)	08:07 15:52	19	14:56 (G_III_10) 15:15 (G_III_10)
	19	05:04 21:13	05:52 20:21	23	19:00 (G_III_01) 19:26 (G_III_01)	23	19:03 (G_III_01) 19:27 (G_III_01)	07:33 18:02	16	17:21 (G_III_06) 17:34 (G_III_06)	07:29 16:08	15:49 (G_III_07) 15:48 (G_III_07)	08:08 15:52	19	14:57 (G_III_10) 15:16 (G_III_10)
	20	05:06 21:12	05:53 20:19	26	19:00 (G_III_01) 19:27 (G_III_01)	22	19:03 (G_III_01) 19:27 (G_III_01)	07:35 18:00	13	17:23 (G_III_06) 17:32 (G_III_06)	07:30 16:06	15:50 (G_III_07) 15:48 (G_III_07)	08:08 15:52	19	14:57 (G_III_10) 15:15 (G_III_10)
	21	05:07 21:11	05:55 20:17	27	19:01 (G_III_01) 19:26 (G_III_01)	21	19:03 (G_III_01) 19:26 (G_III_01)	07:37 17:58	9	17:32 (G_III_06) 17:39 (G_III_06)	16:06 16:05	15:02 (G_III_10) 15:03 (G_III_10)	15:52 15:53	18	15:15 (G_III_10) 15:16 (G_III_10)
	22	05:08 21:10	05:57 20:15	28	18:58 (G_III_01) 19:27 (G_III_01)	19	18:21 (G_III_02) 18:37 (G_III_02)	07:39 17:56			16:04 16:03	15:08 (G_III_10) 15:05 (G_III_10)	15:53 15:54	18	15:16 (G_III_10) 15:17 (G_III_10)
	23	05:10 21:08	05:58 20:12	29	18:57 (G_III_01) 19:27 (G_III_01)	16	18:22 (G_III_02) 18:37 (G_III_02)	07:40 17:54			16:03 16:02	15:09 (G_III_10) 15:06 (G_III_10)	15:54 15:55	18	15:17 (G_III_10) 15:18 (G_III_10)
	24	05:11 21:07	06:00 20:10	30	18:57 (G_III_01) 19:27 (G_III_01)	12	18:26 (G_III_02) 18:31 (G_III_02)	07:42 17:52			16:02 16:01	15:10 (G_III_10) 15:07 (G_III_10)	15:54 15:55	18	15:18 (G_III_10) 15:19 (G_III_10)
	25	05:13 21:06	06:02 20:08	30	18:56 (G_III_01) 19:26 (G_III_01)	5	18:27 (G_III_02) 17:50 (G_III_04)	06:44 16:50			16:01 16:00	15:11 (G_III_10) 15:07 (G_III_10)	15:55 15:56	19	15:19 (G_III_10) 15:20 (G_III_10)
	26	05:14 21:04	06:03 20:06	30	18:56 (G_III_01) 19:26 (G_III_01)	11	18:28 (G_III_02) 17:52 (G_III_04)	06:46 16:48			16:01 16:00	15:12 (G_III_10) 15:08 (G_III_10)	15:56 15:57	19	15:20 (G_III_10) 15:21 (G_III_10)
	27	05:15 21:03	06:05 20:04	30	18:57 (G_III_01) 19:26 (G_III_01)	17	18:29 (G_III_02) 17:54 (G_III_04)	06:48 16:46		15:27 (G_III_07)	16:00 15:59	15:13 (G_III_10) 15:09 (G_III_10)	15:57 15:58	19	15:21 (G_III_10) 15:22 (G_III_10)
	28	05:17 21:01	06:07 20:01	29	18:57 (G_III_01) 19:25 (G_III_01)	21	18:30 (G_III_02) 17:55 (G_III_04)	06:49 16:44	8	15:35 (G_III_07)	15:59 15:58	15:14 (G_III_10) 15:10 (G_III_10)	15:58 15:59	19	15:22 (G_III_10) 15:23 (G_III_10)
	29	05:18 21:00	06:08 19:59	28	18:57 (G_III_01) 19:25 (G_III_01)	23	18:31 (G_III_02) 17:56 (G_III_04)	06:51 16:42	14	15:22 (G_III_07)	15:57 15:56	15:15 (G_III_10) 15:11 (G_III_10)	15:59 16:00	20	15:23 (G_III_10) 15:24 (G_III_10)
	30	05:20 20:58	06:10 19:57	26	18:57 (G_III_01) 19:23 (G_III_01)	25	18:32 (G_III_02) 17:57 (G_III_04)	06:53 16:40	18	15:21 (G_III_07)	15:56 15:55	15:16 (G_III_10) 15:12 (G_III_10)	16:01 16:02	20	15:24 (G_III_10) 15:25 (G_III_10)
	31	05:21 20:57	06:11 19:55	24	18:58 (G_III_01) 19:22 (G_III_01)	27	18:33 (G_III_02) 17:58 (G_III_04)	06:55 16:38	20	15:20 (G_III_07)	15:55 15:54	15:17 (G_III_10) 15:13 (G_III_10)	16:03 16:04	20	15:25 (G_III_10) 15:26 (G_III_10)
Sonnenscheinstunden		503	454		381		456		331		266		612		243
astr.max.mögl.Beschattung			447						562					631	

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 Layout GIII_33 Schattenrezeptor: IO 15 - Ullersdorf, am Feldweg 17
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	08:12 16:01	07:45 16:49	06:51 17:41	06:40 19:35	05:35 20:27	04:50 21:13	04:46 21:27	05:23 20:55	06:13 19:52	07:02 18:43	06:56 16:36	07:48 15:56
2	08:12 16:02	07:43 16:51	06:49 17:43	06:38 19:37	05:33 20:28	04:49 21:14	04:47 21:26	05:25 20:53	06:15 19:50	07:04 18:40	06:58 16:34	07:49 15:55
3	08:11 16:03	07:41 16:53	06:47 17:45	06:36 19:39	05:31 20:30	04:48 21:15	04:48 21:26	05:26 20:51	06:16 19:48	07:06 18:38	07:00 16:33	07:50 15:54
4	08:11 16:05	07:40 16:55	06:44 17:47	06:33 19:41	05:29 20:32	04:47 21:16	04:49 21:26	05:28 20:50	06:18 19:46	07:07 18:36	07:02 16:31	07:52 15:54
5	08:11 16:06	07:38 16:57	06:42 17:48	06:31 19:42	05:28 20:33	04:46 21:17	04:49 21:25	05:29 20:48	06:20 19:43	07:09 18:33	07:04 16:29	07:53 15:53
6	08:11 16:07	07:36 16:59	06:40 17:50	06:29 19:44	05:26 20:35	04:46 21:18	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:05 16:27	07:54 15:53
7	08:10 16:08	07:35 17:00	06:38 17:52	06:26 19:46	05:24 20:37	04:45 21:19	04:51 21:24	05:32 20:44	06:23 19:39	07:12 18:29	07:07 16:26	07:56 15:52
8	08:10 16:10	07:33 17:02	06:35 17:54	06:24 19:47	05:22 20:38	04:45 21:20	04:52 21:23	05:34 20:42	06:25 19:36	07:14 18:27	07:09 16:24	07:57 15:52
9	08:09 16:11	07:31 17:04	06:33 17:55	06:22 19:49	05:20 20:40	04:44 21:20	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:24	07:11 16:22	07:58 15:52
10	08:09 16:12	07:29 17:06	06:31 17:57	06:20 19:51	05:19 20:41	04:44 21:21	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:13 16:21	07:59 15:52
11	08:08 16:14	07:28 17:08	06:29 17:59	06:17 19:53	05:17 20:43	04:43 21:22	04:55 21:21	05:39 20:37	06:29 19:29	07:19 18:20	07:14 16:19	08:00 15:51
12	08:07 16:15	07:26 17:10	06:26 18:01	06:15 19:54	05:15 20:45	04:43 21:23	04:56 21:20	05:40 20:35	06:31 19:27	07:21 18:18	07:16 16:17	08:01 15:51
13	08:07 16:17	07:24 17:12	06:24 18:03	06:13 19:56	05:14 20:46	04:43 21:23	04:57 21:19	05:42 20:33	06:33 19:25	07:23 18:15	07:18 16:16	08:02 15:51
14	08:06 16:18	07:22 17:14	06:22 18:04	06:11 19:58	05:12 20:48	04:43 21:24	04:58 21:18	05:44 20:31	06:34 19:22	07:24 18:13	07:20 16:14	08:03 15:51
15	08:05 16:20	07:20 17:15	06:20 18:06	06:08 19:59	05:10 20:49	04:42 21:25	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	07:21 16:13	08:04 15:51
16	08:04 16:21	07:18 17:17	06:17 18:08	06:06 20:01	05:09 20:51	04:42 21:25	05:01 21:16	05:47 20:27	06:38 19:18	07:28 18:09	07:23 16:12	08:05 15:51
17	08:03 16:23	07:16 17:19	06:15 18:10	06:04 20:03	05:07 20:52	04:42 21:26	05:02 21:15	05:49 20:25	06:39 19:15	07:30 18:07	07:25 16:10	08:06 15:52
18	08:03 16:25	07:14 17:21	06:13 18:11	06:02 20:04	05:06 20:54	04:42 21:26	05:03 21:14	05:50 20:23	06:41 19:13	07:31 18:05	07:27 16:09	08:07 15:52
19	08:02 16:26	07:12 17:23	06:10 18:13	06:00 20:06	05:05 20:55	04:42 21:26	05:05 21:13	05:52 20:21	06:42 19:11	07:33 18:02	07:28 16:08	08:07 15:52
20	08:00 16:28	07:10 17:25	06:08 18:15	05:58 20:08	05:03 20:57	04:42 21:27	05:06 21:12	05:53 20:19	06:44 19:08	07:35 18:00	07:30 16:06	08:08 15:52
21	07:59 16:30	07:08 17:27	06:06 18:16	05:55 20:10	05:02 20:58	04:42 21:27	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 16:05	08:09 15:53
22	07:58 16:31	07:06 17:28	06:03 18:18	05:53 20:11	05:00 21:00	04:43 21:27	05:09 21:09	05:57 20:14	06:47 19:04	07:38 17:56	07:33 16:04	08:09 15:53
23	07:57 16:33	07:04 17:30	06:01 18:20	05:51 20:13	04:59 21:01	04:43 21:27	05:10 21:08	05:58 20:12	06:49 19:01	07:40 17:54	07:35 16:03	08:10 15:54
24	07:56 16:35	07:02 17:32	05:59 18:22	05:49 20:15	04:58 21:03	04:43 21:27	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 16:02	08:10 15:54
25	07:55 16:37	07:00 17:34	05:56 18:23	05:47 20:16	04:57 21:04	04:43 21:27	05:13 21:05	06:02 20:08	06:52 18:57	07:44 17:50	07:38 16:01	08:11 15:55
26	07:53 16:38	06:57 17:36	05:54 18:25	05:45 20:18	04:56 21:05	04:44 21:27	05:14 21:04	06:03 20:06	06:54 18:54	07:46 17:48	07:40 16:00	08:11 15:56
27	07:52 16:40	06:55 17:37	05:52 18:27	05:43 20:20	04:54 21:07	04:44 21:27	05:16 21:03	06:05 20:04	06:56 18:52	07:47 17:46	07:42 16:46	08:11 15:56
28	07:51 16:42	06:53 17:39	05:49 18:29	05:41 20:21	04:53 21:08	04:45 21:27	05:17 21:01	06:07 20:01	06:57 18:50	07:49 17:44	07:43 16:44	08:11 15:57
29	07:49 16:44		06:47 19:30	05:39 20:23	04:52 21:09	04:45 21:27	05:19 20:59	06:08 19:59	06:59 18:47	07:50 17:42	07:45 16:42	08:11 15:58
30	07:48 16:46		06:45 19:32	05:37 20:25	04:51 21:10	04:46 21:27	05:20 20:58	06:10 19:57	07:01 18:45	07:53 17:40	07:46 16:40	08:12 15:59
31	07:46 16:47		06:42 19:34		04:50 21:11		05:22 20:56	06:11 19:55		07:55 17:38		08:12 16:00
Sonnenscheinstunden	258	277	367	416	486	499	503	454	381	331	266	243
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)	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 Layout GIII_33 Schattenrezeptor: IO 16 - Weichensdorf, Dorfstraße 63
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	08:12		07:45	20	15:56 (G.III_10)	06:51	16:39 (G.III_07)	06:40	18:40 (G.III_04)	05:35	04:49
	16:01		16:49		16:16 (G.III_10)	17:41	17:15 (G.III_08)	19:35	19:05 (G.III_04)	20:27	21:13
2	08:12		07:43		15:55 (G.III_10)	06:49	16:38 (G.III_07)	06:38	18:38 (G.III_04)	05:33	04:49
	16:02		16:51	21	16:16 (G.III_10)	17:43	17:15 (G.III_08)	19:37	19:04 (G.III_04)	20:28	21:14
3	08:12		07:42		15:55 (G.III_10)	06:47	16:38 (G.III_07)	06:36	18:38 (G.III_04)	05:31	04:48
	16:03	1	15:29 (G.II_04)	23	16:18 (G.III_10)	17:45	17:15 (G.III_08)	19:39	19:05 (G.III_04)	20:30	21:15
4	08:11		07:40		15:54 (G.III_10)	06:45	16:38 (G.III_07)	06:33	18:38 (G.III_04)	05:29	04:47
	16:04	2	15:30 (G.II_04)	24	16:18 (G.III_10)	17:47	17:15 (G.III_08)	19:41	19:05 (G.III_04)	20:32	21:16
5	08:11		07:38		15:54 (G.III_10)	06:42	16:38 (G.III_07)	06:31	18:37 (G.III_04)	05:27	04:46
	16:06	5	15:31 (G.II_04)	25	16:19 (G.III_10)	17:48	17:15 (G.III_08)	19:42	19:06 (G.III_04)	20:33	21:17
6	08:11		07:37		15:54 (G.III_10)	06:40	16:38 (G.III_07)	06:29	18:36 (G.III_04)	05:26	04:46
	16:07	6	15:27 (G.II_04)	25	16:19 (G.III_10)	17:50	17:13 (G.III_08)	19:44	19:04 (G.III_04)	20:35	21:18
7	08:10		07:35		15:54 (G.III_10)	06:38	16:38 (G.III_07)	06:26	18:36 (G.III_04)	05:24	04:45
	16:08	8	15:34 (G.II_04)	25	16:19 (G.III_10)	17:52	17:11 (G.III_08)	19:46	19:04 (G.III_04)	20:37	21:19
8	08:10		07:33		15:55 (G.III_10)	06:36	16:39 (G.III_07)	06:24	18:37 (G.III_04)	05:22	04:45
	16:09	10	15:35 (G.II_04)	25	16:20 (G.III_10)	17:54	17:08 (G.III_08)	19:47	19:04 (G.III_04)	20:38	21:20
9	08:10		07:31		15:55 (G.III_10)	06:33	16:40 (G.III_07)	06:22	18:37 (G.III_04)	05:20	04:44
	16:11	11	15:37 (G.II_04)	24	16:19 (G.III_10)	17:55	17:01 (G.III_07)	19:49	19:23 (G.III_02)	20:40	22:08
10	08:09		07:30		15:55 (G.III_10)	06:31	16:41 (G.III_07)	06:20	18:37 (G.III_04)	05:19	04:44
	16:12	13	15:38 (G.II_04)	24	16:19 (G.III_10)	17:57	16:59 (G.III_07)	19:51	19:24 (G.III_02)	20:42	23:08
11	08:08		07:28		15:56 (G.III_10)	06:29	16:44 (G.III_07)	06:17	18:38 (G.III_04)	05:17	04:43
	16:14	14	15:39 (G.II_04)	23	16:19 (G.III_10)	17:59	16:57 (G.III_07)	19:53	19:26 (G.III_02)	20:43	24:08
12	08:08		07:26		15:56 (G.III_10)	06:26	16:47 (G.III_07)	06:15	18:39 (G.III_04)	05:15	04:43
	16:15	16	15:41 (G.II_04)	22	16:18 (G.III_10)	18:01	5	16:52 (G.III_07)	19:54	37	20:09 (G.III_01)
13	08:07		07:24		15:57 (G.III_10)	06:24		06:13	18:40 (G.III_04)	05:14	04:43
	16:17	17	15:43 (G.II_04)	20	16:17 (G.III_10)	18:03		19:56	19:30 (G.III_02)	20:46	26:09 (G.III_01)
14	08:06		07:22		15:59 (G.III_10)	06:22	17:33 (G.III_06)	06:11	18:43 (G.III_04)	05:12	04:42
	16:18	19	15:45 (G.II_04)	17	16:16 (G.III_10)	18:04	6	17:39 (G.III_06)	19:58	33	20:10 (G.III_01)
15	08:05		07:20		16:00 (G.III_10)	06:20	17:29 (G.III_06)	06:08	18:47 (G.III_04)	05:10	04:42
	16:20	20	15:46 (G.II_04)	14	16:14 (G.III_10)	18:06	11	17:27 (G.III_06)	19:59	24	20:10 (G.III_01)
16	08:05		07:18		16:03 (G.III_10)	06:17	17:20 (G.III_06)	06:06	19:08 (G.III_02)	05:09	04:42
	16:21	20	15:46 (G.II_04)	8	16:11 (G.III_10)	18:08	15	17:42 (G.III_06)	20:01	22	20:10 (G.III_01)
17	08:04		07:16			06:15	17:26 (G.III_06)	06:04	19:08 (G.III_02)	05:07	04:42
	16:23	20	15:46 (G.II_04)	17	16:10	18:10	18	17:44 (G.III_06)	20:03	22	20:10 (G.III_01)
18	08:03		07:14			06:13	17:24 (G.III_06)	06:02	19:08 (G.III_02)	05:06	04:42
	16:24	20	15:46 (G.II_04)	17	16:11	18:11	21	17:45 (G.III_06)	20:05	21	20:10 (G.III_01)
19	08:02		07:12			06:10	17:24 (G.III_06)	06:00	19:08 (G.III_02)	05:04	04:42
	16:26	20	15:47 (G.II_04)	17	16:13	18:13	21	17:45 (G.III_06)	20:06	21	20:10 (G.III_01)
20	08:01		07:10			06:08	17:24 (G.III_06)	05:58	19:09 (G.III_02)	05:03	04:42
	16:28	20	15:47 (G.II_04)	17	16:15	18:15	21	17:45 (G.III_06)	20:08	19	20:10 (G.III_01)
21	08:00		07:08			06:06	17:23 (G.III_06)	05:55	19:09 (G.III_02)	05:02	04:42
	16:30	19	15:47 (G.II_04)	17	16:17	18:17	21	17:44 (G.III_06)	20:10	18	20:10 (G.III_01)
22	07:58		07:06		16:52 (G.III_07)	06:03	17:23 (G.III_06)	05:53	19:11 (G.III_02)	05:00	04:42
	16:31	19	15:47 (G.II_04)	2	16:54 (G.III_07)	18:18	21	17:44 (G.III_06)	20:11	15	20:10 (G.III_01)
23	07:57		07:04		16:47 (G.III_07)	06:01	17:23 (G.III_06)	05:51	19:12 (G.III_02)	04:59	04:43
	16:33	18	15:47 (G.II_04)	12	16:59 (G.III_07)	18:20	21	17:44 (G.III_06)	20:13	12	20:09 (G.III_01)
24	07:56		07:02		16:44 (G.III_07)	05:59	17:23 (G.III_06)	05:49	19:15 (G.III_02)	04:58	04:43
	16:35	16	15:47 (G.II_04)	18	17:02 (G.III_07)	18:22	19	17:42 (G.III_06)	20:15	5	20:09 (G.III_01)
25	07:55		07:00		16:43 (G.III_07)	05:56	17:24 (G.III_06)	05:47			04:57
	16:36	15	15:46 (G.II_04)	25	17:08 (G.III_08)	18:23	17	17:41 (G.III_06)	20:17		21:04
26	07:53		06:58		16:41 (G.III_07)	05:54	17:26 (G.III_06)	05:45			04:55
	16:38	12	15:45 (G.II_04)	28	17:09 (G.III_08)	18:25	13	17:39 (G.III_06)	20:18		21:05
27	07:52		06:55		16:40 (G.III_07)	05:52	17:28 (G.III_06)	05:43			04:54
	16:40	8	15:43 (G.II_04)	31	17:11 (G.III_08)	18:27	8	17:39 (G.III_06)	20:20		21:07
28	07:51		06:53		16:39 (G.III_07)	05:49	17:49 (G.III_04)	05:41			04:53
	16:42	5	16:08 (G.III_10)	34	17:13 (G.III_08)	18:29	9	17:58 (G.III_04)	20:22		21:08
29	07:49					06:47	18:46 (G.III_04)	05:39			04:52
	16:44	11	16:11 (G.III_10)			19:30	15	19:01 (G.III_04)	20:23		21:09
30	07:48					06:45	18:43 (G.III_04)	05:37			04:51
	16:45	15	16:12 (G.III_10)			19:32	19	19:02 (G.III_04)	20:25		21:11
31	07:46					06:42	18:41 (G.III_04)				04:50
	16:47	18	16:15 (G.III_10)			19:34	23	19:04 (G.III_04)			21:12
Sonnenscheinstunden		258				367		416		486	
astr.max.mögl.Beschattung		398	277	490	637		604		609		29

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)	Zeitpunkt (SS:MM) Schattenende	(WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 16 - Weichensdorf, Dorfstraße 63
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

		Juli		August		September		Oktober		November		Dezember							
1	04:46			05:23		19:54 (G.III_01)	06:13	18:37 (G.III_04)	07:02		06:57	15:25 (G.III_10)	07:48	15:07 (G.II_04)					
2	21:27			20:55	26	20:20 (G.III_01)	19:53	36	19:25 (G.III_02)	18:43	16:36	24	15:49 (G.III_10)	15:56	15	15:22 (G.II_04)			
3	04:47			05:25		19:54 (G.III_01)	06:15		18:36 (G.III_04)	07:04		15:23 (G.III_10)	07:49		15:09 (G.II_04)				
4	21:27			20:54	25	20:19 (G.III_01)	19:50	34	19:23 (G.III_02)	18:40	11	17:34 (G.III_07)	16:34	25	15:48 (G.III_10)	15:55	12	15:21 (G.II_04)	
5	04:48			05:26		19:55 (G.III_01)	06:16		18:34 (G.III_04)	07:06		17:20 (G.III_07)	07:00		15:23 (G.III_10)	07:51		15:09 (G.II_04)	
6	21:26			20:52	24	20:19 (G.III_01)	19:48	30	19:20 (G.III_02)	18:38	16	17:36 (G.III_07)	16:33	25	15:48 (G.III_10)	15:54	11	15:20 (G.II_04)	
7	04:48			05:28		19:56 (G.III_01)	06:18		18:34 (G.III_04)	07:07		17:18 (G.III_07)	07:02		15:23 (G.III_10)	07:52		15:10 (G.II_04)	
8	21:26			20:50	21	20:17 (G.III_01)	19:46	27	19:01 (G.III_04)	18:36	20	17:38 (G.III_07)	16:31	25	15:48 (G.III_10)	15:54	10	15:20 (G.II_04)	
9	04:49			05:29		19:57 (G.III_01)	06:20		18:34 (G.III_04)	07:09		17:17 (G.III_07)	07:04		15:23 (G.III_10)	07:53		15:11 (G.II_04)	
10	21:25			20:48	20	20:17 (G.III_01)	19:43	27	19:01 (G.III_04)	18:33	22	17:39 (G.III_07)	16:29	25	15:48 (G.III_10)	15:53	8	15:19 (G.II_04)	
11	04:50			05:31		19:58 (G.III_01)	06:21		18:32 (G.III_04)	07:11		17:15 (G.III_07)	07:06		15:24 (G.III_10)	07:55		15:13 (G.II_04)	
12	21:25			20:46	17	20:15 (G.III_01)	19:41	29	19:01 (G.III_04)	18:31	31	17:46 (G.III_08)	16:27	24	15:48 (G.III_10)	15:53	6	15:19 (G.II_04)	
13	04:51			05:32		20:00 (G.III_01)	06:23		18:32 (G.III_04)	07:13		17:14 (G.III_07)	07:07		15:24 (G.III_10)	07:56		15:13 (G.II_04)	
14	21:24			20:44	14	20:14 (G.III_01)	19:42	29	19:01 (G.III_04)	18:29	34	17:48 (G.III_08)	16:25	24	15:48 (G.III_10)	15:52	5	15:18 (G.II_04)	
15	04:52			05:34		20:01 (G.III_01)	06:25		18:32 (G.III_04)	07:14		17:13 (G.III_07)	07:09		15:25 (G.III_10)	07:57		15:14 (G.II_04)	
16	21:24			20:43	10	20:11 (G.III_01)	19:36	28	19:00 (G.III_04)	18:27	36	17:49 (G.III_08)	16:24	23	15:48 (G.III_10)	15:52	3	15:17 (G.II_04)	
17	04:53			05:36			06:26		18:32 (G.III_04)	07:16		17:13 (G.III_07)	07:11		15:26 (G.III_10)	07:58		15:16 (G.II_04)	
18	21:23	4		20:08 (G.III_01)	20:41		19:34	27	18:59 (G.III_04)	18:24	37	17:50 (G.III_08)	16:22	21	15:47 (G.III_10)	15:52	1	15:17 (G.II_04)	
19	04:54			05:37			06:28		18:32 (G.III_04)	07:18		17:12 (G.III_07)	07:13		15:27 (G.III_10)	08:00			
20	21:22	8		20:10 (G.III_01)	20:39		19:32	26	18:58 (G.III_04)	18:22	37	17:49 (G.III_08)	16:21	19	15:46 (G.III_10)	15:51			
21	04:55			05:39			06:29		18:32 (G.III_04)	07:19		17:12 (G.III_07)	07:15		15:28 (G.III_10)	08:01			
22	21:21	11		20:12 (G.III_01)	20:37		19:30	25	18:57 (G.III_04)	18:20	38	17:50 (G.III_08)	16:19	17	15:45 (G.III_10)	15:51			
23	04:56			05:40			06:31		18:33 (G.III_04)	07:21		17:12 (G.III_07)	07:16		15:29 (G.III_10)	08:02			
24	21:21	13		20:13 (G.III_01)	20:35		19:27	23	18:56 (G.III_04)	18:18	37	17:49 (G.III_08)	16:17	15	15:44 (G.III_10)	15:51			
25	04:57			05:42			06:33		18:34 (G.III_04)	07:23		17:12 (G.III_07)	07:18		15:32 (G.III_10)	08:03			
26	21:20	15		20:14 (G.III_01)	20:33		19:25	20	18:54 (G.III_04)	18:15	36	17:48 (G.III_08)	16:16	11	15:43 (G.III_10)	15:51			
27	04:58			05:44			06:34		18:36 (G.III_04)	07:25		17:12 (G.III_07)	07:20		15:35 (G.III_10)	08:04			
28	21:19	17		20:15 (G.III_01)	20:31		19:23	16	18:52 (G.III_04)	18:13	32	17:44 (G.III_08)	16:14	4	15:39 (G.III_10)	15:51			
29	04:59			05:46			06:36		18:37 (G.III_04)	07:26		17:12 (G.III_07)	07:22		15:08 (G.II_04)	08:05			
30	21:18			20:16 (G.III_01)	20:29		19:20	11	18:48 (G.III_04)	18:11	30	17:42 (G.III_08)	16:13	8	15:16 (G.II_04)	15:51			
31	05:01			05:47			06:38		18:18 (G.III_06)	07:28		17:13 (G.III_07)	07:23		15:06 (G.II_04)	08:05			
1	21:17	21		20:17 (G.III_01)	20:27		19:18	6	18:24 (G.III_06)	18:09	27	17:40 (G.III_08)	16:12	12	15:18 (G.II_04)	15:51			
2	05:02			05:49			06:39		18:15 (G.III_06)	07:30		17:15 (G.III_07)	07:25		15:05 (G.II_04)	08:06			
3	21:16	21		20:17 (G.III_01)	20:25		19:15	12	18:27 (G.III_06)	18:07	22	17:38 (G.III_08)	16:10	15	15:20 (G.II_04)	15:51			
4	05:03			05:50			06:41		18:12 (G.III_06)	07:32		17:16 (G.III_07)	07:27		15:05 (G.II_04)	08:07			
5	21:15	23		20:18 (G.III_01)	20:23		19:13	16	18:28 (G.III_06)	18:05	16	17:32 (G.III_07)	16:09	16	15:21 (G.II_04)	15:52			
6	05:04			05:52			06:43		18:11 (G.III_06)	07:33		17:19 (G.III_07)	07:29		15:03 (G.II_04)	08:08			
7	21:13	24		20:18 (G.III_01)	20:21	7	19:27 (G.III_02)	19:11	18	18:29 (G.III_06)	18:02	11	17:30 (G.III_07)	16:08	18	15:21 (G.II_04)	15:52		
8	05:06			05:53			06:44		18:09 (G.III_06)	07:35			07:30		15:03 (G.II_04)	08:08			
9	21:12	24		20:19 (G.III_01)	20:19	13	19:30 (G.III_02)	19:08	20	18:29 (G.III_06)	18:00		16:06	19	15:22 (G.II_04)	15:52			
10	05:07			05:55			06:46		18:08 (G.III_06)	07:37			07:32		15:03 (G.II_04)	08:09			
11	21:11	25		20:19 (G.III_01)	20:17	16	19:31 (G.III_02)	19:06	22	18:30 (G.III_06)	17:58		16:05	20	15:23 (G.II_04)	15:53			
12	05:08			05:57			06:47		18:08 (G.III_06)	07:39			07:34		15:04 (G.II_04)	08:09			
13	21:10	25		20:19 (G.III_01)	20:15	18	19:32 (G.III_02)	19:04	22	18:30 (G.III_06)	17:56		16:04	19	15:23 (G.II_04)	15:53			
14	05:10			05:58			06:49		18:07 (G.III_06)	07:40			07:35		15:04 (G.II_04)	08:10			
15	21:08	27		20:21 (G.III_01)	20:12	20	19:32 (G.III_02)	19:01	22	18:29 (G.III_06)	17:54		16:03	20	15:24 (G.II_04)	15:54			
16	05:11			06:00			06:51		18:07 (G.III_06)	07:42			07:37		15:04 (G.II_04)	08:10			
17	21:07	26		20:20 (G.III_01)	20:10	21	19:33 (G.III_02)	18:59	22	18:29 (G.III_06)	17:52		16:02	20	15:24 (G.II_04)	15:54			
18	05:13			06:02			06:52		18:08 (G.III_06)	06:44			07:39		15:04 (G.II_04)	08:11			
19	21:06	27		20:20 (G.III_01)	20:08	21	19:32 (G.III_02)	18:57	20	18:28 (G.III_06)	16:50		16:01	20	15:24 (G.II_04)	15:55			
20	05:14			06:03			06:54		18:07 (G.III_06)	06:46		15:32 (G.III_10)	07:40		15:04 (G.II_04)	08:11			
21	21:04	27		20:21 (G.III_01)	20:06	22	19:33 (G.III_02)	18:54	20	18:27 (G.III_06)	16:48	10	15:42 (G.III_10)	16:00	20	15:24 (G.II_04)	15:56		
22	05:16			06:05			06:56		18:08 (G.III_06)	06:48		15:29 (G.III_10)	07:42		15:05 (G.II_04)	08:11			
23	21:03	28		20:21 (G.III_01)	20:04	22	19:33 (G.III_02)	18:52	17	18:25 (G.III_06)	16:46	15	15:44 (G.III_10)	15:59	20	15:25 (G.II_04)	15:56		
24	05:17			06:07			06:57		18:10 (G.III_06)	06:49		15:28 (G.III_10)	07:43		15:05 (G.II_04)	08:12			
25	21:01	27		20:20 (G.III_01)	20:01	26	19:32 (G.III_02)	18:50	13	18:23 (G.III_06)	16:44	18	15:46 (G.III_10)	15:58	19	15:24 (G.II_04)	15:57		
26	05:18			06:08			06:59		18:11 (G.III_06)	06:51		15:27 (G.III_10)	07:45		15:06 (G.II_04)	08:12			
27	21:06	27		20:21 (G.III_01)	20:06	34	19:32 (G.III_02)	18:57	9	18:20 (G.III_06)	16:42	20	15:47 (G.III_10)	15:57	18	15:24 (G.II_04)	15:58		
28	05:20			06:10			07:01			06:53		15:26 (G.III_10)	07:46		15:07 (G.II_04)	08:12			
29	20:58	26		20:20 (G.III_01)	19:57	37	19:29 (G.III_02)	18:45		16:40		22	15:48 (G.III_10)	15:56	16	15:23 (G.II_04)	15:59		
30	05:21			06:11			18:39 (G.III_04)			06:55		15:25 (G.III_10)				08:12			
31	20:57	27		20:21 (G.III_01)	19:55	37	19:28 (G.III_02)			16:38	23	15:48 (G.III_10)				16:00			
Sonnenscheinstunden		503		454			381		331		266		243						
astr.max.mögl.Beschattung		492		451			627		601		562		71						

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 17 - Weichensdorf, Dorfstraße 50
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

Juli		August		September		Oktober		November		Dezember	
1	04:46	05:23	19:36 (G.III_01)	06:13	18:52 (G.III_02)	07:02	17:44 (G.III_06)	06:57	15:47 (G.III_07)	07:48	14:46 (G.II_04)
2	04:47	05:25	30 20:06 (G.III_01)	19:53	23 19:15 (G.III_02)	18:43	24 19:08 (G.III_06)	16:36	15 18:02 (G.III_07)	15:56	25 15:19 (G.III_10)
3	04:48	05:26	31 20:06 (G.III_01)	19:50	24 19:15 (G.III_02)	18:40	24 18:07 (G.III_06)	16:34	7 15:57 (G.III_07)	15:55	20 15:17 (G.III_10)
4	04:48	05:28	20:06 (G.III_01)	19:48	24 19:14 (G.III_02)	18:38	22 18:06 (G.III_06)	16:33		15:54	18 15:04 (G.II_04)
5	04:49	05:29	19:35 (G.III_01)	19:46	23 19:14 (G.III_02)	18:36	22 17:44 (G.III_06)	16:31		15:54	18 14:47 (G.II_04)
6	04:50	05:31	20:06 (G.III_01)	19:43	23 19:12 (G.III_02)	18:33	20 17:45 (G.III_06)	16:29		15:53	18 15:05 (G.II_04)
7	04:51	05:32	19:35 (G.III_01)	19:41	23 18:49 (G.III_03)	18:31	18 17:45 (G.III_06)	16:27	6 15:06 (G.III_10)	15:53	19 14:47 (G.II_04)
8	04:52	05:34	20:05 (G.III_01)	19:39	33 18:18 (G.III_04)	18:29	15 17:46 (G.III_06)	16:26	12 15:03 (G.III_10)	15:52	20 14:47 (G.II_04)
9	04:53	05:36	19:36 (G.III_01)	19:37	39 18:14 (G.III_04)	18:27	11 17:48 (G.III_06)	16:24	16 15:01 (G.III_10)	15:52	20 14:47 (G.II_04)
10	04:54	05:37	20:04 (G.III_01)	19:34	41 18:12 (G.III_04)	18:24		16:22	19 15:00 (G.III_10)	15:52	20 15:07 (G.II_04)
11	04:55	05:39	19:37 (G.III_01)	19:32	42 18:09 (G.III_04)	18:22		16:21	21 15:19 (G.III_10)	15:52	20 14:49 (G.II_04)
12	04:56	05:40	20:03 (G.III_01)	19:30	42 19:04 (G.III_02)	18:22		16:19	22 15:20 (G.III_10)	15:51	20 15:09 (G.II_04)
13	04:57	05:42	19:38 (G.III_01)	19:27	43 18:08 (G.III_04)	18:21		16:18	24 15:21 (G.III_10)	15:51	20 14:49 (G.II_04)
14	04:58	05:44	20:01 (G.III_01)	19:25	43 19:01 (G.III_03)	18:18	7 16:54 (G.III_07)	16:17	24 15:22 (G.III_10)	15:51	20 15:09 (G.II_04)
15	04:59	05:45	19:40 (G.III_01)	19:23	42 18:05 (G.III_04)	18:15	17:01 (G.III_07)	16:16	24 15:22 (G.III_10)	15:51	20 15:10 (G.II_04)
16	05:01	05:47	19:41 (G.III_01)	19:23	42 18:06 (G.III_04)	18:13	16:49 (G.III_07)	16:14	25 15:23 (G.III_10)	15:51	20 14:50 (G.II_04)
17	05:02	05:49	19:58 (G.III_01)	19:23	39 18:56 (G.III_03)	18:13	24 17:26 (G.III_08)	16:14	25 15:23 (G.III_10)	15:51	20 15:10 (G.II_04)
18	05:03	05:50	19:43 (G.III_01)	19:20	37 18:03 (G.III_04)	18:11	33 16:46 (G.III_07)	16:13	25 14:58 (G.III_10)	15:51	20 14:51 (G.II_04)
19	05:04	05:52	20:29	19:20	37 18:53 (G.III_03)	18:11	33 17:28 (G.III_08)	16:13	25 15:23 (G.III_10)	15:51	20 15:11 (G.II_04)
20	05:06	05:53	05:47	19:18	31 18:03 (G.III_04)	18:08	38 16:45 (G.III_07)	16:12	26 14:58 (G.III_10)	15:51	20 14:50 (G.II_04)
21	05:07	05:54	20:27	19:15	31 18:34 (G.III_04)	18:07	38 17:29 (G.III_08)	16:12	26 15:24 (G.III_10)	15:51	20 15:10 (G.II_04)
22	05:08	05:55	19:48 (G.III_01)	19:13	31 18:02 (G.III_04)	18:05	45 16:44 (G.III_07)	16:12	26 14:58 (G.III_10)	15:51	20 15:11 (G.II_04)
23	05:10	05:58	19:45 (G.III_01)	19:11	30 18:33 (G.III_04)	18:05	45 17:30 (G.III_08)	16:09	25 15:24 (G.III_10)	15:52	20 15:12 (G.II_04)
24	05:11	05:59	19:44 (G.III_01)	19:10	30 18:02 (G.III_04)	18:02	46 16:42 (G.III_07)	16:08	26 14:58 (G.III_10)	15:52	20 15:13 (G.II_04)
25	05:13	06:00	19:56 (G.III_01)	19:08	29 18:31 (G.III_04)	18:00	48 17:30 (G.III_08)	16:08	26 15:24 (G.III_10)	15:52	21 15:13 (G.II_04)
26	05:14	06:01	19:43 (G.III_01)	19:06	27 18:03 (G.III_04)	17:58	48 16:41 (G.III_07)	16:07	26 14:59 (G.III_10)	15:52	21 15:14 (G.II_04)
27	05:16	06:03	20:00 (G.III_01)	19:04	26 18:30 (G.III_04)	17:56	45 17:29 (G.III_08)	16:05	25 15:24 (G.III_10)	15:53	20 15:12 (G.II_04)
28	05:17	06:04	19:41 (G.III_01)	19:03	26 18:04 (G.III_04)	17:54	45 16:40 (G.III_07)	16:04	24 15:00 (G.III_10)	15:53	20 14:53 (G.II_04)
29	05:18	06:05	20:02 (G.III_01)	19:02	23 18:27 (G.III_04)	17:54	43 17:27 (G.III_08)	16:04	24 15:24 (G.III_10)	15:53	20 15:13 (G.II_04)
30	05:20	06:06	19:40 (G.III_01)	19:01	23 17:57 (G.III_06)	17:52	40 16:40 (G.III_07)	16:03	23 15:01 (G.III_10)	15:53	20 15:14 (G.II_04)
31	05:21	06:07	20:03 (G.III_01)	19:00	24 18:26 (G.III_04)	17:52	40 16:40 (G.III_07)	16:03	23 15:02 (G.III_10)	15:54	20 14:54 (G.II_04)
Sonnenscheinstunden		503	454	493	888	796	589	266	243	623	
astr.max.mögl.Beschattung		301	454	493	888	796	589	266	243	623	

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 18 - Weichensdorf, Dorfstraße 45
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	08:12 16:01	15:08 (G_III_10) 07:45 15:25 (G_III_10) 16:49	15:58 (G_III_07) 06:51 16:16 (G_III_07) 17:41	16:54 (G_III_06) 06:40 17:14 (G_III_06) 19:35	18:39 (G_III_02) 05:35 19:02 (G_III_02) 20:27	19:05 (G_III_01) 04:49 19:31 (G_III_01) 21:13					
2	08:12 16:02	15:08 (G_III_10) 07:43 15:26 (G_III_10) 16:51	15:57 (G_III_07) 06:49 16:17 (G_III_07) 17:43	16:52 (G_III_06) 06:38 17:14 (G_III_06) 19:37	18:38 (G_III_02) 05:33 19:01 (G_III_02) 20:28	19:06 (G_III_01) 04:49 19:31 (G_III_01) 21:14					
3	08:12 16:03	15:08 (G_III_10) 07:42 15:27 (G_III_10) 16:53	15:57 (G_III_07) 06:47 16:19 (G_III_07) 17:45	16:52 (G_III_06) 06:36 17:14 (G_III_06) 19:39	18:38 (G_III_02) 05:31 19:00 (G_III_02) 20:30	19:07 (G_III_01) 04:48 19:30 (G_III_01) 21:15					
4	08:11 16:04	15:09 (G_III_10) 07:40 15:28 (G_III_10) 16:55	15:56 (G_III_07) 06:45 16:19 (G_III_07) 17:47	16:52 (G_III_06) 06:33 17:14 (G_III_06) 19:41	18:39 (G_III_02) 05:29 18:59 (G_III_02) 20:32	19:08 (G_III_01) 04:47 19:28 (G_III_01) 21:16					
5	08:11 16:06	15:08 (G_III_10) 07:38 15:28 (G_III_10) 16:57	15:55 (G_III_07) 06:42 16:20 (G_III_07) 17:48	16:52 (G_III_06) 06:31 17:14 (G_III_06) 19:42	18:40 (G_III_02) 05:27 18:58 (G_III_02) 20:33	19:09 (G_III_01) 04:46 19:26 (G_III_01) 21:17					
6	08:11 16:07	15:09 (G_III_10) 07:37 15:29 (G_III_10) 16:58	15:54 (G_III_07) 06:40 16:21 (G_III_07) 17:50	16:52 (G_III_06) 06:29 17:16 (G_III_06) 19:44	18:41 (G_III_02) 05:26 18:56 (G_III_02) 20:35	19:12 (G_III_01) 04:46 19:25 (G_III_01) 21:18					
7	08:10 16:08	15:09 (G_III_10) 07:35 15:30 (G_III_10) 17:00	15:54 (G_III_07) 06:38 16:21 (G_III_07) 17:52	16:52 (G_III_06) 06:26 17:21 (G_III_06) 19:46	18:43 (G_III_02) 05:24 18:53 (G_III_02) 20:37	19:15 (G_III_01) 04:45 19:21 (G_III_01) 21:19					
8	08:10 16:09	15:08 (G_III_10) 07:33 15:30 (G_III_10) 17:02	15:55 (G_III_07) 06:36 16:22 (G_III_07) 17:54	16:53 (G_III_06) 06:24 17:23 (G_III_06) 19:48	18:43 (G_III_02) 05:22 18:53 (G_III_02) 20:38	19:15 (G_III_01) 04:45 19:21 (G_III_01) 21:20					
9	08:10 16:11	15:09 (G_III_10) 07:31 15:31 (G_III_10) 17:04	15:54 (G_III_07) 06:33 16:22 (G_III_07) 17:55	16:54 (G_III_06) 06:22 17:24 (G_III_06) 19:49	18:43 (G_III_02) 05:20 18:54 (G_III_02) 20:40	19:15 (G_III_01) 04:44 19:21 (G_III_01) 21:21					
10	08:09 16:12	15:09 (G_III_10) 07:30 15:32 (G_III_10) 17:06	15:54 (G_III_07) 06:31 16:38 (G_III_08) 17:57	16:56 (G_III_06) 06:20 17:26 (G_III_06) 19:51	18:43 (G_III_02) 05:19 18:56 (G_III_02) 20:42	19:15 (G_III_01) 04:44 19:21 (G_III_01) 21:22					
11	08:08 16:14	15:09 (G_III_10) 07:28 15:32 (G_III_10) 17:08	15:55 (G_III_07) 06:29 16:40 (G_III_08) 17:59	17:00 (G_III_04) 06:17 17:27 (G_III_04) 19:53	18:43 (G_III_02) 05:17 18:56 (G_III_02) 20:43	19:15 (G_III_01) 04:43 19:21 (G_III_01) 21:22					
12	08:08 16:15	15:09 (G_III_10) 07:26 15:33 (G_III_10) 17:10	15:55 (G_III_07) 06:26 16:42 (G_III_08) 18:01	16:59 (G_III_04) 06:15 17:26 (G_III_04) 19:54	18:43 (G_III_02) 05:15 18:56 (G_III_02) 20:45	19:15 (G_III_01) 04:43 19:21 (G_III_01) 21:23					
13	08:07 16:17	15:10 (G_III_10) 07:24 15:34 (G_III_10) 17:12	15:55 (G_III_07) 06:24 16:44 (G_III_08) 18:03	16:58 (G_III_04) 06:13 17:27 (G_III_04) 19:56	18:43 (G_III_02) 05:14 18:56 (G_III_02) 20:46	19:15 (G_III_01) 04:43 19:21 (G_III_01) 21:24					
14	08:06 16:18	15:10 (G_III_10) 07:22 15:34 (G_III_10) 17:13	15:56 (G_III_07) 06:22 16:46 (G_III_08) 18:04	16:58 (G_III_04) 06:11 17:27 (G_III_04) 19:58	18:43 (G_III_02) 05:12 18:56 (G_III_02) 20:48	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:24					
15	08:05 16:20	15:11 (G_III_10) 07:20 15:35 (G_III_10) 17:15	15:57 (G_III_07) 06:20 16:47 (G_III_08) 18:06	16:57 (G_III_04) 06:08 17:26 (G_III_04) 20:00	19:15 (G_III_01) 05:10 19:27 (G_III_01) 20:50	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:25					
16	08:05 16:21	15:11 (G_III_10) 07:18 15:35 (G_III_10) 17:17	15:58 (G_III_07) 06:17 16:47 (G_III_08) 18:08	16:57 (G_III_04) 06:06 17:27 (G_III_04) 20:01	19:12 (G_III_01) 05:09 19:29 (G_III_01) 20:51	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:25					
17	08:04 16:23	15:11 (G_III_10) 07:16 15:36 (G_III_10) 17:19	15:59 (G_III_07) 06:15 16:47 (G_III_08) 18:10	16:57 (G_III_04) 06:04 17:26 (G_III_04) 20:03	19:10 (G_III_01) 05:07 19:31 (G_III_01) 20:53	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:26					
18	08:03 16:24	15:11 (G_III_10) 07:14 15:35 (G_III_10) 17:21	16:01 (G_III_07) 06:13 16:47 (G_III_08) 18:11	16:57 (G_III_04) 06:02 17:25 (G_III_04) 20:05	19:09 (G_III_01) 05:06 19:32 (G_III_01) 20:54	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:26					
19	08:02 16:26	15:12 (G_III_10) 07:12 15:35 (G_III_10) 17:23	16:04 (G_III_07) 06:10 16:45 (G_III_08) 18:13	16:57 (G_III_04) 06:00 17:25 (G_III_04) 20:06	19:08 (G_III_01) 05:04 19:33 (G_III_01) 20:56	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:27					
20	08:01 16:28	15:13 (G_III_10) 07:10 15:36 (G_III_10) 17:25	16:30 (G_III_08) 06:08 16:44 (G_III_08) 18:15	16:58 (G_III_04) 05:58 17:24 (G_III_04) 20:08	19:07 (G_III_01) 05:03 19:34 (G_III_01) 20:57	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:27					
21	08:00 16:30	15:14 (G_III_10) 07:08 15:36 (G_III_10) 17:26	16:32 (G_III_08) 06:06 16:42 (G_III_08) 18:17	16:58 (G_III_04) 05:55 17:51 (G_III_03) 20:10	19:06 (G_III_01) 05:02 19:34 (G_III_01) 20:59	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:27					
22	07:58 16:31	15:14 (G_III_10) 07:06 15:35 (G_III_10) 17:28	16:36 (G_III_08) 06:03 16:39 (G_III_08) 18:18	17:00 (G_III_04) 05:53 17:53 (G_III_03) 20:11	19:05 (G_III_01) 05:00 19:35 (G_III_01) 21:00	19:15 (G_III_01) 04:42 19:21 (G_III_01) 21:27					
23	07:57 16:33	15:15 (G_III_10) 07:04 15:35 (G_III_10) 17:30	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:20	17:02 (G_III_04) 05:51 17:55 (G_III_03) 20:13	19:05 (G_III_01) 04:59 19:35 (G_III_01) 21:01	19:15 (G_III_01) 04:43 19:21 (G_III_01) 21:28					
24	07:56 16:35	15:16 (G_III_10) 07:02 15:35 (G_III_10) 17:32	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:22	17:04 (G_III_04) 05:49 17:56 (G_III_03) 20:15	19:04 (G_III_01) 04:58 19:35 (G_III_01) 21:03	19:15 (G_III_01) 04:43 19:21 (G_III_01) 21:28					
25	07:55 16:36	15:17 (G_III_10) 07:00 15:34 (G_III_10) 17:34	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:24	17:04 (G_III_04) 05:47 17:56 (G_III_03) 20:17	19:04 (G_III_01) 04:57 19:35 (G_III_01) 21:04	19:15 (G_III_01) 04:43 19:21 (G_III_01) 21:28					
26	07:53 16:38	15:19 (G_III_10) 06:58 15:33 (G_III_10) 17:36	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:26	17:04 (G_III_04) 05:45 17:56 (G_III_03) 20:19	19:04 (G_III_01) 04:55 19:34 (G_III_01) 21:06	19:15 (G_III_01) 04:44 19:21 (G_III_01) 21:28					
27	07:52 16:40	15:21 (G_III_10) 06:55 15:31 (G_III_10) 17:37	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:28	17:04 (G_III_04) 05:43 17:56 (G_III_03) 20:21	19:04 (G_III_01) 04:54 19:34 (G_III_01) 21:07	19:15 (G_III_01) 04:44 19:21 (G_III_01) 21:28					
28	07:51 16:42	15:25 (G_III_10) 06:53 15:28 (G_III_10) 17:39	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:30	17:04 (G_III_04) 05:41 17:56 (G_III_03) 20:23	19:04 (G_III_01) 04:53 19:34 (G_III_01) 21:08	19:15 (G_III_01) 04:45 19:21 (G_III_01) 21:28					
29	07:49 16:44	15:28 (G_III_10) 06:51 15:28 (G_III_10) 17:39	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:32	17:04 (G_III_04) 05:39 17:56 (G_III_03) 20:25	19:04 (G_III_01) 04:52 19:34 (G_III_01) 21:09	19:15 (G_III_01) 04:45 19:21 (G_III_01) 21:27					
30	07:48 16:45	15:28 (G_III_10) 06:51 15:28 (G_III_10) 17:39	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:34	17:04 (G_III_04) 05:37 17:56 (G_III_03) 20:27	19:04 (G_III_01) 04:51 19:34 (G_III_01) 21:11	19:15 (G_III_01) 04:45 19:21 (G_III_01) 21:27					
31	07:46 16:47	15:28 (G_III_10) 06:51 15:28 (G_III_10) 17:39	16:01 (G_III_07) 06:01 16:47 (G_III_08) 18:36	17:04 (G_III_04) 05:35 17:56 (G_III_03) 20:29	19:04 (G_III_01) 04:50 19:34 (G_III_01) 21:13	19:15 (G_III_01) 04:45 19:21 (G_III_01) 21:27					
Sonnenscheinstunden		258	277	367	416	553	486	500			
astr.max.mögl.Beschattung		588	663	788	846	946	846	846			

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 Layout GIII_33 Schattenrezeptor: IO 18 - Weichensdorf, Dorfstraße 45
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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

		Jul	August	September	Oktober	November	Dezember				
1	04:46 21:27	05:23 20:55		06:13 19:53	07:02 18:43	17:38 (G_III_04) 18:06 (G_III_04)	06:57 16:36	15:24 (G_III_07) 16:07 (G_III_08)	07:48 15:56	14:51 (G_III_10) 15:14 (G_III_10)	
2	04:47 21:27	05:25 20:53		06:15 19:50	07:04 18:40	17:38 (G_III_04) 18:05 (G_III_04)	06:58 16:34	15:23 (G_III_07) 15:51 (G_III_07)	07:49 15:55	14:52 (G_III_10) 15:15 (G_III_10)	
3	04:48 21:26	05:26 20:52		06:16 19:48	07:06 18:38	17:35 (G_III_06) 18:04 (G_III_04)	07:00 16:33	15:23 (G_III_07) 15:51 (G_III_07)	07:51 15:54	14:52 (G_III_10) 15:14 (G_III_10)	
4	04:48 21:26	05:28 20:50		06:18 19:46	07:07 18:36	17:32 (G_III_06) 18:03 (G_III_04)	07:02 16:31	15:24 (G_III_07) 15:51 (G_III_07)	07:52 15:54	14:53 (G_III_10) 15:15 (G_III_10)	
5	04:49 21:25	05:29 20:48		06:20 19:43	07:09 18:33	17:31 (G_III_06) 18:01 (G_III_04)	07:04 16:29	15:24 (G_III_07) 15:50 (G_III_07)	07:53 15:53	14:54 (G_III_10) 15:15 (G_III_10)	
6	04:50 21:25	05:31 20:46	9	19:23 (G_III_01) 19:32 (G_III_01)	06:21 19:41	18:37 (G_III_02) 18:52 (G_III_02)	07:11 18:31	17:29 (G_III_06) 17:58 (G_III_04)	07:06 16:27	15:25 (G_III_07) 15:50 (G_III_07)	07:55 15:53
7	04:51 21:24	05:32 20:44	15	19:20 (G_III_01) 19:35 (G_III_01)	06:23 19:39	18:35 (G_III_02) 18:53 (G_III_02)	07:13 18:29	17:28 (G_III_06) 17:55 (G_III_04)	07:07 16:25	15:26 (G_III_07) 15:49 (G_III_07)	07:56 15:52
8	04:52 21:24	05:34 20:43	18	19:18 (G_III_01) 19:36 (G_III_01)	06:25 19:37	18:33 (G_III_02) 18:53 (G_III_02)	07:14 18:27	17:27 (G_III_06) 17:49 (G_III_06)	07:09 16:24	15:27 (G_III_07) 15:48 (G_III_07)	07:57 15:52
9	04:53 21:23	05:36 20:41	21	19:17 (G_III_01) 19:38 (G_III_01)	06:26 19:34	18:33 (G_III_02) 18:54 (G_III_02)	07:16 18:24	17:27 (G_III_06) 17:49 (G_III_06)	07:11 16:22	15:28 (G_III_07) 15:47 (G_III_07)	07:58 15:52
10	04:54 21:22	05:37 20:39	24	19:15 (G_III_01) 19:39 (G_III_01)	06:28 19:32	18:31 (G_III_02) 18:54 (G_III_02)	07:18 18:22	17:26 (G_III_06) 17:48 (G_III_06)	07:13 16:21	15:29 (G_III_07) 15:46 (G_III_07)	08:00 15:51
11	04:55 21:21	05:39 20:37	25	19:15 (G_III_01) 19:40 (G_III_01)	06:29 19:30	18:31 (G_III_02) 18:54 (G_III_02)	07:19 18:20	17:26 (G_III_06) 17:48 (G_III_06)	07:15 16:19	15:31 (G_III_07) 15:45 (G_III_07)	08:01 15:51
12	04:56 21:21	05:40 20:35	27	19:13 (G_III_01) 19:40 (G_III_01)	06:31 19:27	18:31 (G_III_02) 18:54 (G_III_02)	07:21 18:18	17:26 (G_III_06) 17:48 (G_III_06)	07:16 16:17	15:34 (G_III_07) 15:42 (G_III_07)	08:02 15:51
13	04:57 21:20	05:42 20:33	28	19:13 (G_III_01) 19:41 (G_III_01)	06:33 19:25	18:30 (G_III_02) 18:53 (G_III_02)	07:23 18:15	17:27 (G_III_06) 17:47 (G_III_06)	07:18 16:16	15:42 (G_III_07) 15:47 (G_III_10)	15:51 15:51
14	04:58 21:19	05:44 20:31	29	19:12 (G_III_01) 19:41 (G_III_01)	06:34 19:23	18:30 (G_III_02) 18:53 (G_III_02)	07:25 18:13	17:27 (G_III_06) 17:44 (G_III_06)	07:20 16:14	14:57 (G_III_10) 15:00 (G_III_10)	08:04 15:51
15	04:59 21:18	05:45 20:29	30	19:12 (G_III_01) 19:41 (G_III_01)	06:36 19:20	18:30 (G_III_02) 18:51 (G_III_02)	07:26 18:11	17:28 (G_III_06) 17:42 (G_III_06)	07:22 16:13	14:53 (G_III_10) 15:04 (G_III_10)	08:05 15:51
16	05:01 21:17	05:47 20:27	31	19:11 (G_III_01) 19:41 (G_III_01)	06:38 19:18	18:30 (G_III_03) 18:51 (G_III_03)	07:28 18:09	17:30 (G_III_06) 17:40 (G_III_06)	07:23 16:12	14:52 (G_III_10) 15:06 (G_III_10)	08:05 15:51
17	05:02 21:16	05:49 20:25	30	19:11 (G_III_01) 19:41 (G_III_01)	06:39 19:15	18:30 (G_III_03) 18:49 (G_III_03)	07:30 18:07	17:34 (G_III_06) 17:37 (G_III_06)	07:25 16:10	14:51 (G_III_10) 15:08 (G_III_10)	08:06 15:51
18	05:03 21:15	05:50 20:23	30	19:11 (G_III_01) 19:41 (G_III_01)	06:41 19:13	18:29 (G_III_03) 18:46 (G_III_03)	07:32 18:05	17:37 (G_III_06) 17:52 (G_III_04)	07:27 07:33	14:50 (G_III_10) 15:09 (G_III_10)	08:07 15:52
19	05:04 21:13	05:52 20:21	31	19:10 (G_III_01) 19:41 (G_III_01)	06:43 19:11	17:52 (G_III_04) 17:48 (G_III_04)	07:33 07:35	17:52 (G_III_04) 17:05 (G_III_08)	07:33 07:30	15:09 (G_III_10) 14:49 (G_III_10)	15:52 15:52
20	05:06 21:12	05:53 20:19	30	19:11 (G_III_01) 19:41 (G_III_01)	06:44 19:08	17:48 (G_III_04) 18:41 (G_III_03)	07:35 18:00	17:05 (G_III_08) 17:12 (G_III_08)	07:30 16:06	15:09 (G_III_10) 15:10 (G_III_10)	15:52 15:52
21	05:07 21:11	05:55 20:17	29	19:10 (G_III_01) 19:39 (G_III_01)	06:46 19:06	17:46 (G_III_04) 18:39 (G_III_03)	07:37 17:58	17:02 (G_III_08) 17:13 (G_III_08)	07:32 16:05	14:49 (G_III_10) 15:11 (G_III_10)	15:53 15:53
22	05:08 21:10	05:57 20:15	28	19:11 (G_III_01) 19:39 (G_III_01)	06:47 19:04	17:44 (G_III_04) 18:37 (G_III_03)	07:39 17:56	17:00 (G_III_08) 17:15 (G_III_08)	07:34 16:04	14:49 (G_III_10) 15:12 (G_III_10)	15:53 15:53
23	05:10 21:08	05:58 20:12	27	19:11 (G_III_01) 19:38 (G_III_01)	06:49 19:01	17:42 (G_III_04) 18:07 (G_III_04)	07:40 17:54	16:33 (G_III_07) 17:16 (G_III_08)	07:35 16:03	14:49 (G_III_10) 15:13 (G_III_10)	15:54 15:54
24	05:11 21:07	06:00 20:10	25	19:12 (G_III_01) 19:37 (G_III_01)	06:51 18:59	17:41 (G_III_04) 18:08 (G_III_04)	07:42 17:52	16:30 (G_III_07) 17:16 (G_III_08)	07:37 16:02	14:49 (G_III_10) 15:13 (G_III_10)	15:54 15:54
25	05:13 21:06	06:02 20:08	23	19:12 (G_III_01) 19:35 (G_III_01)	06:52 18:57	17:40 (G_III_04) 18:09 (G_III_04)	06:44 16:50	15:28 (G_III_07) 16:17 (G_III_08)	07:39 16:01	14:49 (G_III_10) 15:13 (G_III_10)	15:55 15:55
26	05:14 21:04	06:03 20:06	21	19:13 (G_III_01) 19:34 (G_III_01)	06:54 18:54	17:39 (G_III_04) 18:08 (G_III_04)	06:46 16:48	15:27 (G_III_07) 16:17 (G_III_08)	07:40 16:00	14:49 (G_III_10) 15:13 (G_III_10)	15:56 15:56
27	05:15 21:03	06:05 20:04	17	19:15 (G_III_01) 19:32 (G_III_01)	06:56 18:52	17:39 (G_III_04) 18:08 (G_III_04)	06:48 16:46	15:26 (G_III_07) 16:17 (G_III_08)	07:42 15:59	14:50 (G_III_10) 15:14 (G_III_10)	15:57 15:56
28	05:17 21:01	06:07 20:01	11	19:17 (G_III_01) 19:28 (G_III_01)	06:57 18:50	17:39 (G_III_04) 18:08 (G_III_04)	06:49 16:44	15:25 (G_III_07) 16:15 (G_III_08)	07:43 15:58	14:49 (G_III_10) 15:13 (G_III_10)	15:57 15:57
29	05:18 21:00	06:08 19:59			06:59 18:47	17:38 (G_III_04) 18:07 (G_III_04)	06:51 16:42	15:25 (G_III_07) 16:13 (G_III_08)	07:45 15:57	14:50 (G_III_10) 15:14 (G_III_10)	15:58 15:58
30	05:20 20:58	06:10 19:57			07:01 18:45	17:38 (G_III_04) 18:07 (G_III_04)	06:53 16:40	15:24 (G_III_07) 16:11 (G_III_08)	07:46 15:56	14:51 (G_III_10) 15:15 (G_III_10)	15:59 15:59
31	05:21 20:57	06:11 19:55					06:55 16:38	15:24 (G_III_07) 16:09 (G_III_08)	07:47 15:58	14:52 (G_III_10) 15:16 (G_III_10)	16:00 16:00
Sonnenscheinstunden	503	454	557	381	612	748	331	266	609	243	493
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)	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 Layout GIII_33 Schattenrezeptor: IO 19 - Weichensdorf, Dorfstraße 46

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	08:12	15:05 (G_III_10)	07:45	15:54 (G_III_07)	06:51	16:50 (G_III_06)	06:40	18:36 (G_III_02)	05:35	19:04 (G_III_01)	04:49						
	16:01	19	15:24 (G_III_10)	16:49	21	16:15 (G_III_07)	17:41	22	17:12 (G_III_06)	19:35	22	18:58 (G_III_02)	20:27	19	19:23 (G_III_01)	21:13	
2	08:12	15:06 (G_III_10)	07:43	15:53 (G_III_07)	06:49	16:49 (G_III_06)	06:38	18:36 (G_III_02)	05:33	19:06 (G_III_01)	04:49						
	16:02	19	15:25 (G_III_10)	16:51	23	16:16 (G_III_07)	17:43	22	17:11 (G_III_06)	19:37	20	18:56 (G_III_02)	20:28	16	19:22 (G_III_01)	21:14	
3	08:12	15:06 (G_III_10)	07:42	15:53 (G_III_07)	06:47	16:49 (G_III_06)	06:36	18:37 (G_III_02)	05:31	19:08 (G_III_01)	04:48						
	16:03	20	15:26 (G_III_10)	16:53	24	16:17 (G_III_07)	17:45	22	17:11 (G_III_06)	19:39	18	18:55 (G_III_02)	20:30	12	19:20 (G_III_01)	21:15	
4	08:11	15:07 (G_III_10)	07:40	15:53 (G_III_07)	06:45	16:50 (G_III_06)	06:33	18:38 (G_III_02)	05:29	19:13 (G_III_01)	04:47						
	16:04	20	15:27 (G_III_10)	16:55	25	16:18 (G_III_07)	17:47	21	17:11 (G_III_06)	19:41	16	18:54 (G_III_02)	20:32	1	19:14 (G_III_01)	21:16	
5	08:11	15:06 (G_III_10)	07:38	15:52 (G_III_07)	06:42	16:50 (G_III_06)	06:31	18:40 (G_III_02)	05:27								
	16:06	21	15:27 (G_III_10)	16:57	26	16:18 (G_III_07)	17:48	28	17:18 (G_III_04)	19:42	11	18:51 (G_III_02)	20:33				
6	08:11	15:07 (G_III_10)	07:37	15:52 (G_III_07)	06:40	16:50 (G_III_06)	06:29										
	16:07	21	15:28 (G_III_10)	16:58	26	16:18 (G_III_07)	17:50	29	17:19 (G_III_04)	19:44							
7	08:10	15:07 (G_III_10)	07:35	15:51 (G_III_07)	06:38	16:51 (G_III_06)	06:26										
	16:08	22	15:29 (G_III_10)	17:00	28	16:19 (G_III_07)	17:52	30	17:21 (G_III_04)	19:46							
8	08:10	15:07 (G_III_10)	07:33	15:52 (G_III_07)	06:36	16:53 (G_III_06)	06:24										
	16:09	22	15:29 (G_III_10)	17:02	28	16:20 (G_III_07)	17:54	30	17:23 (G_III_04)	19:48							
9	08:10	15:07 (G_III_10)	07:31	15:52 (G_III_07)	06:33	16:54 (G_III_06)	06:22										
	16:11	23	15:30 (G_III_10)	17:04	28	16:20 (G_III_07)	17:55	29	17:23 (G_III_04)	19:49							
10	08:09	15:07 (G_III_10)	07:30	15:53 (G_III_07)	06:31	16:56 (G_III_06)	06:20										
	16:12	23	15:30 (G_III_10)	17:06	26	16:19 (G_III_07)	17:57	27	17:23 (G_III_04)	19:51							
11	08:08	15:07 (G_III_10)	07:28	15:53 (G_III_07)	06:29	16:56 (G_III_06)	06:17										
	16:14	24	15:31 (G_III_10)	17:08	26	16:19 (G_III_07)	17:59	28	17:24 (G_III_04)	19:53							
12	08:08	15:08 (G_III_10)	07:26	15:53 (G_III_07)	06:26	16:54 (G_III_06)	06:15										
	16:15	23	15:31 (G_III_10)	17:10	26	16:19 (G_III_07)	18:01	29	17:23 (G_III_04)	19:54	7	19:21 (G_III_01)	20:45				
13	08:07	15:09 (G_III_10)	07:24	15:54 (G_III_07)	06:24	16:54 (G_III_06)	06:13										
	16:17	23	15:32 (G_III_10)	17:12	24	16:18 (G_III_07)	18:03	30	17:24 (G_III_04)	19:56	15	19:25 (G_III_01)	20:46				
14	08:06	15:09 (G_III_10)	07:22	15:55 (G_III_07)	06:22	16:54 (G_III_06)	06:11										
	16:18	24	15:33 (G_III_10)	17:13	22	16:17 (G_III_07)	18:04	30	17:24 (G_III_04)	19:58	19	19:27 (G_III_01)	20:48				
15	08:05	15:09 (G_III_10)	07:20	15:56 (G_III_07)	06:20	16:54 (G_III_06)	06:08										
	16:20	24	15:33 (G_III_10)	17:15	20	16:16 (G_III_07)	18:06	28	17:22 (G_III_04)	20:00	22	19:27 (G_III_01)	20:50				
16	08:05	15:10 (G_III_10)	07:18	15:58 (G_III_07)	06:17	16:54 (G_III_06)	06:06										
	16:21	23	15:33 (G_III_10)	17:17	16	16:14 (G_III_07)	18:08	28	17:22 (G_III_04)	20:01	25	19:29 (G_III_01)	20:51				
17	08:04	15:10 (G_III_10)	07:16	16:00 (G_III_07)	06:15	16:55 (G_III_06)	06:04										
	16:23	24	15:34 (G_III_10)	17:19	12	16:12 (G_III_07)	18:10	27	17:22 (G_III_04)	20:03	26	19:29 (G_III_01)	20:53				
18	08:03	15:10 (G_III_10)	07:14		06:13	16:55 (G_III_06)	06:02										
	16:24	23	15:33 (G_III_10)	17:21		18:11	25	17:20 (G_III_04)	20:05	28	19:30 (G_III_01)	20:54					
19	08:02	15:11 (G_III_10)	07:12		06:10	16:56 (G_III_06)	06:00										
	16:26	22	15:33 (G_III_10)	17:23		18:13	23	17:19 (G_III_04)	20:06	29	19:30 (G_III_01)	20:56					
20	08:01	15:12 (G_III_10)	07:10		06:08	16:57 (G_III_06)	05:58										
	16:28	21	15:33 (G_III_10)	17:25		18:15	20	17:17 (G_III_04)	20:08	30	19:31 (G_III_01)	20:57					
21	08:00	15:13 (G_III_10)	07:08		06:06	16:58 (G_III_06)	05:55										
	16:30	21	15:34 (G_III_10)	17:26		18:17	17	17:15 (G_III_04)	20:10	31	19:31 (G_III_01)	20:59					
22	07:58	15:13 (G_III_10)	07:06		06:03	17:02 (G_III_04)	05:53										
	16:31	20	15:33 (G_III_10)	17:28		18:18	13	17:51 (G_III_02)	20:11	31	19:31 (G_III_01)	21:00					
23	07:57	15:15 (G_III_10)	07:04		06:01	17:44 (G_III_02)	05:51										
	16:33	17	15:32 (G_III_10)	17:30		18:20	11	17:55 (G_III_02)	20:13	30	19:30 (G_III_01)	21:01					
24	07:56	15:16 (G_III_10)	07:02		05:59	17:41 (G_III_02)	05:49										
	16:35	16	15:32 (G_III_10)	17:32	9	17:06 (G_III_06)	18:22	15	17:56 (G_III_02)	20:15	30	19:30 (G_III_01)	21:03				
25	07:55	15:17 (G_III_10)	07:00		05:56	16:55 (G_III_06)	05:56										
	16:36	13	15:30 (G_III_10)	17:34	13	17:08 (G_III_06)	18:23	19	17:58 (G_III_02)	20:17	30	19:30 (G_III_01)	21:04				
26	07:53	15:20 (G_III_10)	06:58		05:54	16:52 (G_III_06)	05:54										
	16:38	9	15:29 (G_III_10)	17:36	17	17:09 (G_III_06)	18:25	21	17:59 (G_III_02)	20:18	29	19:29 (G_III_01)	21:06				
27	07:52		06:55		05:52	16:51 (G_III_06)	05:52										
	16:40		17:37	20	17:11 (G_III_06)	18:27	22	17:59 (G_III_02)	20:20	27	19:28 (G_III_01)	21:07					
28	07:51	16:02 (G_III_07)	06:53		05:49	16:51 (G_III_06)	05:49										
	16:42	5	16:07 (G_III_07)	17:39	21	17:12 (G_III_06)	18:29	23	17:59 (G_III_02)	20:22	26	19:27 (G_III_01)	21:08				
29	07:49	15:58 (G_III_07)			06:47		06:47										
	16:44	12	16:10 (G_III_07)		19:30		19:30										
30	07:48	15:56 (G_III_07)			06:45		06:45										
	16:45	16	16:12 (G_III_07)		19:32		19:32										
31	07:46	15:55 (G_III_07)			06:42		06:42										
	16:47	19	16:14 (G_III_07)		19:34		19:34										
Sonnenscheinstunden			258														
astr.max.mögl.Beschattung			589		277	481	367	739	416	569	486	48			500		

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

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

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 19 - Weichensdorf, Dorfstraße 46

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

	Jul	August	September	Oktober	November	Dezember			
1	04:46 21:27	05:23 20:55	06:13 19:53	07:02 18:43	17:34 (G_III_04) 18:03 (G_III_04)	06:57 16:36	15:22 (G_III_07) 15:49 (G_III_07)	07:48 15:56	14:49 (G_III_10) 15:13 (G_III_10)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:40	29 17:33 (G_III_04) 18:02 (G_III_04)	06:58 16:34	27 15:21 (G_III_07) 15:48 (G_III_07)	07:49 15:55	14:50 (G_III_10) 15:14 (G_III_10)
3	04:48 21:26	05:26 20:52	06:16 19:48	07:06 18:38	29 17:34 (G_III_04) 18:01 (G_III_04)	07:00 16:33	27 15:21 (G_III_07) 15:48 (G_III_07)	07:51 15:54	14:50 (G_III_10) 15:13 (G_III_10)
4	04:48 21:26	05:28 20:50	06:18 19:46	07:07 18:36	27 17:34 (G_III_04) 18:01 (G_III_04)	07:02 16:31	27 15:21 (G_III_07) 15:48 (G_III_07)	07:52 15:54	14:52 (G_III_10) 15:14 (G_III_10)
5	04:49 21:25	05:29 20:48	06:20 19:43	07:09 18:33	27 17:31 (G_III_06) 18:00 (G_III_04)	07:04 16:29	27 15:21 (G_III_07) 15:48 (G_III_07)	07:53 15:53	14:52 (G_III_10) 15:14 (G_III_10)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	29 17:28 (G_III_06) 17:58 (G_III_04)	07:06 16:27	27 15:22 (G_III_07) 15:48 (G_III_07)	07:55 15:53	14:53 (G_III_10) 15:15 (G_III_10)
7	04:51 21:24	05:32 20:44	06:23 19:39	07:13 18:33	30 17:26 (G_III_06) 17:56 (G_III_04)	07:07 16:25	26 15:22 (G_III_07) 15:48 (G_III_07)	07:56 15:52	14:53 (G_III_10) 15:14 (G_III_10)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:48	30 17:26 (G_III_06) 17:54 (G_III_04)	07:09 16:24	26 15:23 (G_III_07) 15:47 (G_III_07)	07:57 15:52	14:54 (G_III_10) 15:14 (G_III_10)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:31	28 17:25 (G_III_06) 17:51 (G_III_04)	07:11 16:22	24 15:24 (G_III_07) 15:46 (G_III_07)	07:58 15:52	14:54 (G_III_10) 15:14 (G_III_10)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:29	26 17:24 (G_III_06) 17:46 (G_III_06)	07:13 16:21	22 15:25 (G_III_07) 15:46 (G_III_07)	08:00 15:51	14:56 (G_III_10) 15:15 (G_III_10)
11	04:55 21:21	05:39 20:37	06:29 19:31	07:19 18:28	22 17:23 (G_III_06) 17:46 (G_III_06)	07:15 16:19	21 15:26 (G_III_07) 15:45 (G_III_07)	08:01 15:51	14:56 (G_III_10) 15:15 (G_III_10)
12	04:56 21:21	05:40 20:35	06:30 19:12	07:21 18:28	23 17:23 (G_III_06) 17:45 (G_III_06)	07:16 16:17	19 15:28 (G_III_07) 15:43 (G_III_07)	08:02 15:51	14:57 (G_III_10) 15:15 (G_III_10)
13	04:57 21:20	05:42 20:33	06:33 19:11	07:23 18:27	22 17:24 (G_III_06) 17:45 (G_III_06)	07:18 16:17	15 15:30 (G_III_07) 15:42 (G_III_07)	08:03 15:51	14:58 (G_III_10) 15:15 (G_III_10)
14	04:58 21:19	05:44 20:31	06:34 19:09	07:25 18:27	21 17:23 (G_III_06) 17:43 (G_III_06)	07:20 16:14	12 15:34 (G_III_07) 15:38 (G_III_07)	08:04 15:51	14:58 (G_III_10) 15:16 (G_III_10)
15	04:59 21:18	05:45 20:29	06:36 19:08	07:26 18:26	20 17:24 (G_III_06) 17:42 (G_III_06)	07:22 16:13	4 15:38 (G_III_07) 15:42 (G_III_07)	08:05 15:51	14:59 (G_III_10) 15:16 (G_III_10)
16	05:01 21:17	05:47 20:27	06:38 19:07	07:28 18:26	18 17:25 (G_III_06) 17:40 (G_III_06)	07:23 16:12	14:53 (G_III_10) 15:02 (G_III_10)	08:05 15:51	14:59 (G_III_10) 15:15 (G_III_10)
17	05:02 21:16	05:49 20:25	06:39 19:07	07:30 18:27	15 17:27 (G_III_06) 17:38 (G_III_06)	07:25 16:10	9 14:51 (G_III_10) 15:04 (G_III_10)	08:06 15:51	15:00 (G_III_10) 15:16 (G_III_10)
18	05:03 21:15	05:50 20:23	06:41 19:07	07:32 18:28	11 17:29 (G_III_06) 17:36 (G_III_06)	07:27 16:09	13 14:50 (G_III_10) 15:06 (G_III_10)	08:07 15:52	15:01 (G_III_10) 15:16 (G_III_10)
19	05:04 21:13	05:52 20:21	06:43 19:06	07:33 18:28	7 17:36 (G_III_06)	07:29	16 15:06 (G_III_10) 14:49 (G_III_10)	15:52 08:08	15:16 (G_III_10) 15:02 (G_III_10)
20	05:06 21:12	05:53 20:19	06:44 19:06	07:35 18:29		07:30	17 15:06 (G_III_10) 14:48 (G_III_10)	15:52 08:08	15:17 (G_III_10) 15:02 (G_III_10)
21	05:07 21:11	05:55 20:17	06:46 19:05	07:37 18:41		07:32	20 14:48 (G_III_10) 15:08 (G_III_10)	08:09 15:52	15:03 (G_III_10) 15:17 (G_III_10)
22	05:08 21:10	05:57 20:15	06:47 19:05	07:39 17:48		07:34	21 15:09 (G_III_10) 14:48 (G_III_10)	15:53 08:09	15:17 (G_III_10) 15:03 (G_III_10)
23	05:10 21:08	05:58 20:12	06:49 19:05	07:40 17:59		07:35	21 15:09 (G_III_10) 14:48 (G_III_10)	15:53 08:10	15:17 (G_III_10) 15:04 (G_III_10)
24	05:11 21:07	06:00 20:10	06:51 19:05	07:42 17:40		16:03	22 15:10 (G_III_10) 14:48 (G_III_10)	15:54 08:10	15:19 (G_III_10) 15:04 (G_III_10)
25	05:13 21:06	06:02 20:08	06:52 19:05	07:44 18:02	5 16:33 (G_III_07) 15:29 (G_III_07)	07:37 07:39	23 15:11 (G_III_10) 14:47 (G_III_10)	15:54 08:11	15:19 (G_III_10) 15:04 (G_III_10)
26	05:14 21:04	06:03 20:06	06:54 19:06	07:46 18:03	13 15:42 (G_III_07) 15:27 (G_III_07)	16:01 07:40	24 15:11 (G_III_10) 14:48 (G_III_10)	15:55 08:11	15:19 (G_III_10) 15:05 (G_III_10)
27	05:15 21:03	06:05 20:04	06:56 19:32	07:48 17:36	17 15:44 (G_III_07) 15:26 (G_III_07)	16:00 07:42	24 15:12 (G_III_10) 14:48 (G_III_10)	15:56 08:11	15:20 (G_III_10) 15:05 (G_III_10)
28	05:17 21:01	06:07 20:01	06:57 19:31	07:49 18:04	20 15:46 (G_III_07) 15:24 (G_III_07)	15:59 07:43	24 15:12 (G_III_10) 14:48 (G_III_10)	15:56 08:12	15:21 (G_III_10) 15:05 (G_III_10)
29	05:18 21:00	06:08 19:59	06:59 19:28	07:51 17:34	23 15:47 (G_III_07) 15:24 (G_III_07)	15:58 07:45	24 15:12 (G_III_10) 14:49 (G_III_10)	15:57 08:12	15:22 (G_III_10) 15:05 (G_III_10)
30	05:20 20:58	06:10 19:57	07:01 19:10	07:53 18:03	24 15:48 (G_III_07) 15:23 (G_III_07)	15:57 07:46	24 15:13 (G_III_10) 14:50 (G_III_10)	15:58 08:12	15:22 (G_III_10) 15:06 (G_III_10)
31	05:21 20:57	06:11 19:55	07:02 19:14	07:55 18:03	25 15:48 (G_III_07) 15:22 (G_III_07)	15:56 07:47	23 15:13 (G_III_10) 15:13 (G_III_10)	15:59 08:12	15:23 (G_III_10) 15:06 (G_III_10)
Sonnenscheinstunden		503	454	381	331	266	243	556	15:24 (G_III_10)
astr.max.mögl.Beschattung			536	501	568	609			

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)	Zeitpunkt (SS:MM)	Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 20 - Weichensdorf, Dorfstraße 47
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	08:12 16:01	21 15:02 (G_III_10) 16:49	23 16:13 (G_III_07) 17:41	22 17:10 (G_III_06) 19:35	20 18:34 (G_III_02) 05:35	9 19:05 (G_III_01) 04:49					
2	08:12 16:02	21 15:03 (G_III_10) 16:51	25 16:14 (G_III_07) 17:43	22 17:09 (G_III_06) 19:37	16 18:51 (G_III_02) 05:33						
3	08:12 16:03	22 15:04 (G_III_10) 16:53	25 16:15 (G_III_07) 17:45	26 17:13 (G_III_04) 19:39	13 18:49 (G_III_02) 05:31						
4	08:11 16:04	22 15:04 (G_III_10) 16:55	27 16:16 (G_III_07) 17:47	28 17:16 (G_III_04) 19:41	6 18:46 (G_III_02) 05:29						
5	08:11 16:06	22 15:04 (G_III_10) 16:57	27 16:16 (G_III_07) 17:48	29 17:18 (G_III_04) 19:42							
6	08:11 16:07	23 15:04 (G_III_10) 16:58	27 16:16 (G_III_07) 17:50	29 17:18 (G_III_04) 19:44							
7	08:10 16:08	23 15:04 (G_III_10) 17:00	27 16:16 (G_III_07) 17:52	29 17:20 (G_III_04) 19:46							
8	08:10 16:09	23 15:04 (G_III_10) 17:02	27 16:17 (G_III_07) 17:54	27 17:20 (G_III_04) 19:48							
9	08:10 16:11	23 15:05 (G_III_10) 17:04	26 16:16 (G_III_07) 17:55	28 17:20 (G_III_04) 19:49							
10	08:09 16:12	23 15:05 (G_III_10) 17:06	26 16:16 (G_III_07) 17:57	28 17:20 (G_III_04) 19:51	7 19:10 (G_III_01) 05:19						
11	08:08 16:14	24 15:05 (G_III_10) 17:08	24 16:15 (G_III_07) 17:59	29 17:21 (G_III_04) 19:53	15 19:06 (G_III_01) 05:17						
12	08:08 16:15	24 15:05 (G_III_10) 17:10	23 16:15 (G_III_07) 18:01	29 17:20 (G_III_04) 19:54	19 19:04 (G_III_01) 05:15						
13	08:07 16:17	23 15:07 (G_III_10) 17:12	21 16:14 (G_III_07) 18:03	29 17:20 (G_III_04) 19:56	23 19:02 (G_III_01) 05:14						
14	08:06 16:18	23 15:07 (G_III_10) 17:13	18 16:12 (G_III_07) 18:04	28 17:19 (G_III_04) 19:58	25 19:01 (G_III_01) 05:12						
15	08:05 16:20	23 15:08 (G_III_10) 17:15	14 16:10 (G_III_07) 18:06	27 17:18 (G_III_04) 20:00	27 19:26 (G_III_01) 05:10						
16	08:05 16:21	23 15:08 (G_III_10) 17:17	7 16:00 (G_III_07) 18:08	25 17:17 (G_III_04) 20:01	28 19:26 (G_III_01) 05:09						
17	08:04 16:23	22 15:09 (G_III_10) 17:19		23 17:16 (G_III_04) 20:03	29 19:27 (G_III_01) 05:07						
18	08:03 16:24	21 15:09 (G_III_10) 17:21		21 17:14 (G_III_04) 20:05	30 19:27 (G_III_01) 05:06						
19	08:02 16:26	20 15:10 (G_III_10) 17:23		17 17:12 (G_III_04) 20:06	30 19:27 (G_III_01) 05:05						
20	08:01 16:28	19 15:11 (G_III_10) 17:25		11 17:09 (G_III_04) 20:08	30 19:27 (G_III_01) 05:04						
21	08:00 16:30	18 15:12 (G_III_10) 17:26		9 17:07 (G_III_02) 20:10	31 19:27 (G_III_01) 05:03						
22	07:58 16:31	17 15:12 (G_III_10) 17:28	4 16:57 (G_III_06) 18:18	13 17:40 (G_III_02) 20:11	30 19:26 (G_III_01) 05:02						
23	07:57 16:33	15 15:14 (G_III_10) 17:30	10 16:53 (G_III_06) 18:20	17 17:38 (G_III_02) 20:13	29 19:26 (G_III_01) 05:01						
24	07:56 16:35	12 15:16 (G_III_10) 17:32	15 16:51 (G_III_06) 18:22	20 17:36 (G_III_02) 20:15	28 19:25 (G_III_01) 05:00						
25	07:55 16:36	7 15:18 (G_III_10) 17:34	18 17:08 (G_III_06) 18:23	22 17:35 (G_III_02) 20:17	27 19:24 (G_III_01) 04:59						
26	07:53 16:38		20 16:48 (G_III_06) 18:25	22 17:35 (G_III_02) 20:18	26 19:24 (G_III_01) 04:58						
27	07:52 16:40	10 15:56 (G_III_07) 17:37	21 17:09 (G_III_06) 18:27	23 17:33 (G_III_02) 20:20	23 19:22 (G_III_01) 04:57						
28	07:51 16:42	15 15:54 (G_III_07) 17:39	21 17:09 (G_III_06) 18:29	23 17:33 (G_III_02) 20:22	22 19:21 (G_III_01) 04:56						
29	07:49 16:44	18 15:52 (G_III_07) 17:40		23 17:33 (G_III_02) 20:24	18 19:21 (G_III_01) 04:55						
30	07:48 16:45	20 16:10 (G_III_07) 17:42		22 18:33 (G_III_02) 20:26	15 19:19 (G_III_01) 04:54						
31	07:46 16:47			21 18:54 (G_III_02) 20:28							
Sonnenscheinstunden		258	277	367	416	486	500				
astr.max.mögl.Beschattung		599	476	722	567	9					

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

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

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 20 - Weichensdorf, Dorfstraße 47
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

		Jul	August	September		Oktober		November		Dezember					
1	04:46 21:27	05:23 20:55		06:13 19:53	15	19:05 (G_III_01) 19:20 (G_III_01)	07:02 18:43	29	17:31 (G_III_04) 18:00 (G_III_04)	06:57 16:36	26	15:20 (G_III_07) 15:46 (G_III_07)	07:48 15:56	24	14:47 (G_III_10) 15:11 (G_III_10)
2	04:47 21:27	05:25 20:53		06:15 19:50	7	19:09 (G_III_01) 19:16 (G_III_01)	07:04 18:40	30	17:29 (G_III_04) 17:59 (G_III_04)	06:58 16:34	26	15:19 (G_III_07) 15:45 (G_III_07)	07:49 15:55	24	14:48 (G_III_10) 15:12 (G_III_10)
3	04:48 21:26	05:26 20:52		06:16 19:48		07:06 18:38		28	17:30 (G_III_04) 17:58 (G_III_04)	07:00 16:33	27	15:18 (G_III_07) 15:45 (G_III_07)	07:51 15:54	23	14:48 (G_III_10) 15:11 (G_III_10)
4	04:48 21:26	05:28 20:50		06:18 19:46		07:07 18:36		28	17:30 (G_III_04) 17:58 (G_III_04)	07:02 16:31	27	15:18 (G_III_07) 15:45 (G_III_07)	07:52 15:54	23	14:49 (G_III_10) 15:12 (G_III_10)
5	04:49 21:25	05:29 20:48		06:20 19:43		07:09 18:33		28	17:30 (G_III_04) 17:58 (G_III_04)	07:04 16:29	27	15:18 (G_III_07) 15:45 (G_III_07)	07:53 15:53	23	14:49 (G_III_10) 15:12 (G_III_10)
6	04:50 21:25	05:31 20:46		06:21 19:41		07:11 18:31		28	17:28 (G_III_06) 17:56 (G_III_04)	07:06 16:27	26	15:19 (G_III_07) 15:45 (G_III_07)	07:55 15:53	22	14:51 (G_III_10) 15:13 (G_III_10)
7	04:51 21:24	05:32 20:44		06:23 19:39		07:13 18:29		29	17:26 (G_III_06) 17:55 (G_III_04)	07:07 16:25	26	15:19 (G_III_07) 15:45 (G_III_07)	07:56 15:52	22	14:51 (G_III_10) 15:13 (G_III_10)
8	04:52 21:24	05:34 20:43		06:25 19:37		07:14 18:40		30	17:24 (G_III_06) 17:54 (G_III_04)	07:09 16:24	26	15:19 (G_III_07) 15:45 (G_III_07)	07:57 15:52	22	14:51 (G_III_10) 15:13 (G_III_10)
9	04:53 21:23	05:36 20:41		06:26 19:34	6	18:31 (G_III_02) 18:43 (G_III_02)	07:16 18:24	29	17:23 (G_III_06) 17:52 (G_III_04)	07:11 16:22	25	15:20 (G_III_07) 15:45 (G_III_07)	07:58 15:52	21	14:52 (G_III_10) 15:13 (G_III_10)
10	04:54 21:22	05:37 20:39		06:28 19:32	12	18:28 (G_III_02) 18:44 (G_III_02)	07:18 18:22	28	17:21 (G_III_06) 17:49 (G_III_04)	07:13 16:21	25	15:21 (G_III_07) 15:44 (G_III_07)	08:00 15:51	21	14:53 (G_III_10) 15:14 (G_III_10)
11	04:55 21:21	05:39 20:37		06:29 19:30	16	18:27 (G_III_02) 18:46 (G_III_02)	07:19 18:20	27	17:21 (G_III_06) 17:45 (G_III_04)	07:15 16:19	25	15:22 (G_III_07) 15:44 (G_III_07)	08:01 15:51	21	14:54 (G_III_10) 15:14 (G_III_10)
12	04:56 21:21	05:40 20:35	19:12 (G_III_01)	06:31 19:24	19	18:26 (G_III_02) 18:47 (G_III_02)	07:21 18:18	24	17:21 (G_III_06) 17:43 (G_III_06)	07:16 16:17	25	15:23 (G_III_07) 15:43 (G_III_07)	08:02 15:51	20	14:54 (G_III_10) 15:14 (G_III_10)
13	04:57 21:20	05:42 20:33	12	06:33 19:26	21	18:24 (G_III_02) 18:46 (G_III_02)	07:23 18:15	22	17:21 (G_III_06) 17:43 (G_III_06)	07:18 16:16	25	15:24 (G_III_07) 15:42 (G_III_07)	08:03 15:51	20	14:55 (G_III_10) 15:14 (G_III_10)
14	04:58 21:19	05:44 20:31	16	06:35 19:27	22	18:24 (G_III_02) 18:47 (G_III_02)	07:25 18:13	22	17:20 (G_III_06) 17:41 (G_III_06)	07:20 16:14	18	15:26 (G_III_07) 15:40 (G_III_07)	08:04 15:51	19	14:55 (G_III_10) 15:14 (G_III_10)
15	04:59 21:18	05:45 20:29	19	06:36 19:27	23	18:23 (G_III_02) 18:46 (G_III_02)	07:26 18:11	21	17:20 (G_III_06) 17:41 (G_III_06)	07:22 16:13	14	15:29 (G_III_07) 15:39 (G_III_07)	08:05 15:51	19	14:56 (G_III_10) 15:15 (G_III_10)
16	05:01 21:17	05:47 20:27	22	06:38 19:29	23	18:23 (G_III_02) 18:46 (G_III_02)	07:28 18:09	17	17:21 (G_III_06) 17:40 (G_III_06)	07:23 16:12	10	15:30 (G_III_07) 15:42 (G_III_10)	08:05 15:51	19	14:56 (G_III_10) 15:14 (G_III_10)
17	05:02 21:16	05:49 20:25	24	06:39 19:30	23	18:23 (G_III_02) 18:46 (G_III_02)	07:30 18:07	19	17:22 (G_III_06) 17:38 (G_III_06)	07:25 16:10	7	14:52 (G_III_10) 15:07 (G_III_10)	08:06 15:51	18	14:57 (G_III_10) 15:15 (G_III_10)
18	05:03 21:15	05:50 20:23	26	06:41 19:31	23	18:22 (G_III_02) 18:44 (G_III_02)	07:32 18:05	16	17:23 (G_III_06) 17:36 (G_III_06)	07:27 16:09	14	14:50 (G_III_10) 15:02 (G_III_10)	08:07 15:52	18	14:58 (G_III_10) 15:15 (G_III_10)
19	05:04 21:13	05:52 20:21	27	06:43 19:31	22	18:23 (G_III_02) 18:43 (G_III_02)	07:33 18:02	13	17:25 (G_III_06) 17:34 (G_III_06)	07:29 16:08	12	14:48 (G_III_10) 15:03 (G_III_10)	08:08 15:52	17	14:58 (G_III_10) 15:16 (G_III_10)
20	05:06 21:12	05:53 20:19	29	06:44 19:32	20	18:23 (G_III_02) 18:41 (G_III_02)	07:35 18:00	9	17:25 (G_III_06) 18:01 (G_III_02)	07:30 16:06	15	14:47 (G_III_10) 15:04 (G_III_10)	08:08 15:52	18	14:58 (G_III_10) 15:16 (G_III_10)
21	05:07 21:11	05:55 20:17	30	06:46 19:31	18	18:25 (G_III_02) 18:39 (G_III_02)	07:37 17:58		17:32 (G_III_06) 18:01 (G_III_02)	07:32 16:05	17	14:47 (G_III_10) 15:05 (G_III_10)	08:09 15:53	18	14:59 (G_III_10) 15:17 (G_III_10)
22	05:08 21:10	05:57 20:15		06:47 19:31	14	18:27 (G_III_02) 18:37 (G_III_02)	07:39 17:56		17:34 (G_III_06) 18:01 (G_III_02)	07:34 16:04	18	14:47 (G_III_10) 15:06 (G_III_10)	08:10 15:53	18	14:59 (G_III_10) 15:17 (G_III_10)
23	05:10 21:08	05:58 20:12	31	06:49 19:31	10	17:43 (G_III_04) 17:52 (G_III_04)	07:40 17:54		17:35 (G_III_06) 18:03 (G_III_10)	07:35 16:03	19	14:47 (G_III_10) 15:07 (G_III_10)	08:10 15:54	18	15:00 (G_III_10) 15:18 (G_III_10)
24	05:11 21:07	06:00 20:10		06:51 19:31	9	17:40 (G_III_04) 17:55 (G_III_04)	07:42 17:52		17:37 (G_III_06) 18:03 (G_III_10)	07:42 16:02	20	14:47 (G_III_10) 15:08 (G_III_10)	08:10 15:54	18	15:00 (G_III_10) 15:18 (G_III_10)
25	05:13 21:06	06:02 20:08	30	06:52 19:30	15	17:38 (G_III_04) 17:57 (G_III_04)	06:44 16:50		17:39 (G_III_06) 18:04 (G_III_10)	07:39 16:01	21	14:46 (G_III_10) 15:08 (G_III_10)	08:11 15:55	17	15:01 (G_III_10) 15:18 (G_III_10)
26	05:14 21:04	06:03 20:06	30	06:54 19:30	19	17:35 (G_III_04) 17:58 (G_III_04)	06:46 16:48		17:40 (G_III_06) 18:05 (G_III_10)	07:40 16:00	22	14:46 (G_III_10) 15:09 (G_III_10)	08:11 15:56	17	15:02 (G_III_10) 15:20 (G_III_10)
27	05:15 21:03	06:05 20:04	29	06:56 19:31	23	17:34 (G_III_04) 17:59 (G_III_04)	06:48 16:46	10	15:25 (G_III_07) 15:40 (G_III_07)	07:42 15:59	23	14:47 (G_III_10) 15:10 (G_III_10)	08:11 15:56	18	15:02 (G_III_10) 15:20 (G_III_10)
28	05:17 21:01	06:07 20:01	28	06:57 19:32	25	17:33 (G_III_04) 17:59 (G_III_04)	06:49 16:44	15	15:23 (G_III_07) 15:42 (G_III_07)	07:43 15:58	23	14:46 (G_III_10) 15:10 (G_III_10)	08:12 15:57	18	15:02 (G_III_10) 15:21 (G_III_10)
29	05:18 21:00	06:08 19:59	26	06:59 19:32	26	17:31 (G_III_04) 17:59 (G_III_04)	06:51 16:42	19	15:22 (G_III_07) 15:43 (G_III_07)	07:45 15:57	24	14:47 (G_III_10) 15:10 (G_III_10)	08:12 15:58	19	15:02 (G_III_10) 15:21 (G_III_10)
30	05:20 20:58	06:10 19:57	25	07:01 19:32	28	17:31 (G_III_04) 17:59 (G_III_04)	06:53 16:40	21	15:21 (G_III_07) 15:44 (G_III_07)	07:46 15:56	23	14:48 (G_III_10) 15:11 (G_III_10)	08:12 15:59	19	15:03 (G_III_10) 15:22 (G_III_10)
31	05:21 20:57	06:11 19:55	23	07:01 19:23	28	19:04 (G_III_01) 19:23 (G_III_01)	06:55 16:38	23	15:21 (G_III_07) 15:45 (G_III_07)	07:46 15:45	23	15:11 (G_III_10) 15:45 (G_III_10)	08:12 16:00	19	15:03 (G_III_10) 15:23 (G_III_10)
Sonnenscheinstunden	503	454	506	381	467	331	566	266	610	243	613				
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 Layout GIII_33 Schattenrezeptor: IO 21 - Weichensdorf, Dorfstraße 48A

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni
1	08:12 16:01	14:59 (G_III_10) 07:45 15:21 (G_III_10) 16:49	15:45 (G_III_07) 06:51 16:10 (G_III_07) 17:41	16:44 (G_III_06) 06:40 17:11 (G_III_04) 19:35	18:36 (G_III_02) 05:35 18:41 (G_III_02) 20:27	04:49 21:13
2	08:12 16:02	15:00 (G_III_10) 07:43 15:21 (G_III_10) 16:51	15:44 (G_III_07) 06:49 16:10 (G_III_07) 17:43	16:44 (G_III_06) 06:38 17:12 (G_III_04) 19:37	05:33 20:28	04:49 21:14
3	08:12 16:03	15:00 (G_III_10) 07:42 15:22 (G_III_10) 16:53	15:45 (G_III_07) 06:47 16:11 (G_III_07) 17:45	16:45 (G_III_06) 06:36 17:13 (G_III_04) 19:39	05:31 20:30	04:48 21:15
4	08:11 16:04	15:01 (G_III_10) 07:40 15:23 (G_III_10) 16:55	15:45 (G_III_07) 06:45 16:11 (G_III_07) 17:47	16:46 (G_III_06) 06:33 17:14 (G_III_04) 19:41	05:29 20:32	04:47 21:16
5	08:11 16:06	15:01 (G_III_10) 07:38 15:23 (G_III_10) 16:57	15:45 (G_III_07) 06:42 16:11 (G_III_07) 17:48	16:48 (G_III_04) 06:31 17:15 (G_III_04) 19:42	05:27 20:33	04:46 21:17
6	08:11 16:07	15:02 (G_III_10) 07:37 15:24 (G_III_10) 16:58	15:45 (G_III_07) 06:40 16:11 (G_III_07) 17:50	16:47 (G_III_04) 06:29 17:14 (G_III_04) 19:44	19:03 (G_III_01) 05:26 19:11 (G_III_01) 20:35	04:46 21:18
7	08:10 16:08	15:01 (G_III_10) 07:35 15:24 (G_III_10) 17:00	15:46 (G_III_07) 06:38 16:11 (G_III_07) 17:52	16:47 (G_III_04) 06:26 17:15 (G_III_04) 19:46	18:59 (G_III_01) 05:24 19:15 (G_III_01) 20:37	04:45 21:19
8	08:10 16:09	15:01 (G_III_10) 07:33 15:24 (G_III_10) 17:02	15:47 (G_III_07) 06:36 16:11 (G_III_07) 17:54	16:47 (G_III_04) 06:24 17:15 (G_III_04) 19:48	18:57 (G_III_01) 05:22 19:17 (G_III_01) 20:38	04:45 21:20
9	08:10 16:11	15:03 (G_III_10) 07:31 15:25 (G_III_10) 17:04	15:48 (G_III_07) 06:33 16:10 (G_III_07) 17:55	16:46 (G_III_04) 06:22 17:14 (G_III_04) 19:49	18:56 (G_III_01) 05:20 19:18 (G_III_01) 20:40	04:44 21:21
10	08:09 16:12	15:03 (G_III_10) 07:30 15:26 (G_III_10) 17:06	15:49 (G_III_07) 06:31 16:09 (G_III_07) 17:57	16:46 (G_III_04) 06:20 17:14 (G_III_04) 19:51	18:54 (G_III_01) 05:19 19:18 (G_III_01) 20:42	04:44 21:22
11	08:08 16:14	15:03 (G_III_10) 07:28 15:26 (G_III_10) 17:08	15:50 (G_III_07) 06:29 16:08 (G_III_07) 17:59	16:47 (G_III_04) 06:17 17:14 (G_III_04) 19:53	18:53 (G_III_01) 05:17 19:19 (G_III_01) 20:43	04:43 21:22
12	08:08 16:15	15:03 (G_III_10) 07:26 15:26 (G_III_10) 17:10	15:52 (G_III_07) 06:26 16:07 (G_III_07) 18:01	16:46 (G_III_04) 06:15 17:12 (G_III_04) 19:54	18:52 (G_III_01) 05:15 19:20 (G_III_01) 20:45	04:43 21:23
13	08:07 16:17	15:05 (G_III_10) 07:24 15:27 (G_III_10) 17:12	15:54 (G_III_07) 06:24 16:04 (G_III_07) 18:03	16:47 (G_III_04) 06:13 17:11 (G_III_04) 19:56	18:51 (G_III_01) 05:14 19:20 (G_III_01) 20:46	04:43 21:24
14	08:06 16:18	15:05 (G_III_10) 07:22 15:27 (G_III_10) 17:13	06:22 18:04	16:49 (G_III_04) 06:11 17:10 (G_III_04) 19:58	18:51 (G_III_01) 05:12 19:20 (G_III_01) 20:48	04:42 21:24
15	08:05 16:20	15:06 (G_III_10) 07:20 15:27 (G_III_10) 17:15	06:20 18:06	16:49 (G_III_04) 06:08 17:08 (G_III_04) 20:00	18:50 (G_III_01) 05:10 19:20 (G_III_01) 20:50	04:42 21:25
16	08:05 16:21	15:07 (G_III_10) 07:18 15:27 (G_III_10) 17:17	06:17 18:08	16:52 (G_III_04) 06:06 17:05 (G_III_04) 20:01	18:50 (G_III_01) 05:09 19:19 (G_III_01) 20:51	04:42 21:25
17	08:04 16:23	15:07 (G_III_10) 07:16 15:27 (G_III_10) 17:19	06:15 18:10	16:56 (G_III_04) 06:04 17:01 (G_III_04) 20:03	18:50 (G_III_01) 05:07 19:19 (G_III_01) 20:53	04:42 21:26
18	08:03 16:24	15:07 (G_III_10) 07:14 15:26 (G_III_10) 17:21	06:13 18:11	17:38 (G_III_02) 06:02 17:45 (G_III_02) 20:05	18:50 (G_III_01) 05:06 19:19 (G_III_01) 20:54	04:42 21:26
19	08:02 16:26	15:09 (G_III_10) 07:12 15:26 (G_III_10) 17:23	06:10 18:13	17:35 (G_III_02) 06:00 17:48 (G_III_02) 20:06	18:50 (G_III_01) 05:04 19:18 (G_III_01) 20:56	04:42 21:27
20	08:01 16:28	15:10 (G_III_10) 07:10 15:26 (G_III_10) 17:25	16:50 (G_III_06) 06:08 16:57 (G_III_06) 18:15	17:34 (G_III_02) 05:58 17:50 (G_III_02) 20:08	18:50 (G_III_01) 05:03 19:18 (G_III_01) 20:57	04:42 21:27
21	08:00 16:29	15:12 (G_III_10) 07:08 15:25 (G_III_10) 17:26	16:48 (G_III_06) 06:06 16:59 (G_III_06) 18:17	17:31 (G_III_02) 05:55 17:51 (G_III_02) 20:10	18:51 (G_III_01) 05:02 19:17 (G_III_01) 20:59	04:42 21:27
22	07:58 16:31	15:13 (G_III_10) 07:06 15:23 (G_III_10) 17:28	16:46 (G_III_06) 06:03 17:01 (G_III_06) 18:18	17:31 (G_III_02) 05:53 17:52 (G_III_02) 20:11	18:52 (G_III_01) 05:00 19:16 (G_III_01) 21:00	04:42 21:27
23	07:57 16:33	15:17 (G_III_10) 07:04 15:21 (G_III_10) 17:30	16:45 (G_III_06) 06:01 17:03 (G_III_06) 18:20	17:30 (G_III_02) 05:51 17:52 (G_III_02) 20:13	18:53 (G_III_01) 04:59 19:14 (G_III_01) 21:01	04:43 21:28
24	07:56 16:35	15:52 (G_III_07) 07:02 16:01 (G_III_07) 17:32	16:45 (G_III_06) 05:59 17:05 (G_III_06) 18:22	17:29 (G_III_02) 05:49 17:52 (G_III_02) 20:15	18:54 (G_III_01) 04:58 19:13 (G_III_01) 21:03	04:43 21:28
25	07:55 16:36	15:49 (G_III_07) 07:00 16:03 (G_III_07) 17:34	16:44 (G_III_06) 05:56 17:05 (G_III_06) 18:23	17:29 (G_III_02) 05:47 17:52 (G_III_02) 20:17	18:56 (G_III_01) 04:57 19:10 (G_III_01) 21:04	04:43 21:28
26	07:53 16:38	15:48 (G_III_07) 06:58 16:05 (G_III_07) 17:36	16:43 (G_III_06) 05:54 17:05 (G_III_06) 18:25	17:29 (G_III_02) 05:45 17:52 (G_III_02) 20:18	18:59 (G_III_01) 04:55 19:07 (G_III_01) 21:06	04:44 21:28
27	07:52 16:40	15:47 (G_III_07) 06:55 16:06 (G_III_07) 17:37	16:43 (G_III_06) 05:52 17:05 (G_III_06) 18:27	17:28 (G_III_02) 05:43 17:50 (G_III_02) 20:20	04:54 21:07	04:44 21:28
28	07:51 16:42	15:47 (G_III_07) 06:53 16:08 (G_III_07) 17:39	16:43 (G_III_06) 05:49 17:09 (G_III_04) 18:29	17:29 (G_III_02) 05:41 17:50 (G_III_02) 20:22	04:53 21:08	04:45 21:28
29	07:49 16:44	15:46 (G_III_07) 06:47 16:08 (G_III_07) 17:40	06:47 19:30	18:30 (G_III_02) 05:39 18:49 (G_III_02) 20:23	04:52 21:09	04:45 21:27
30	07:48 16:45	15:45 (G_III_07) 06:45 16:09 (G_III_07) 17:41	06:45 19:32	18:30 (G_III_02) 05:37 18:46 (G_III_02) 20:25	04:51 21:11	04:46 21:27
31	07:46 16:47	15:45 (G_III_07) 06:42 16:10 (G_III_07) 17:42	06:42 19:34	18:32 (G_III_02) 05:35 18:45 (G_III_02) 20:26	04:50 21:12	04:46 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr. max. mögl. Beschattung	603	451	671	492		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 21 - Weichensdorf, Dorfstraße 48A
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

		Jul	August		September		Oktober		November		Dezember			
1	04:46 21:27	05:23 20:55		06:13 19:53	26	18:52 (G_III_01) 19:18 (G_III_01)	07:02 18:43	17:26 (G_III_04) 17:52 (G_III_04)	06:57 16:36	21	15:18 (G_III_07) 15:39 (G_III_07)	07:48 15:56	23	14:45 (G_III_10) 15:08 (G_III_10)
2	04:47 21:27	05:25 20:53		06:15 19:50	24	18:53 (G_III_01) 19:17 (G_III_01)	07:04 18:40	17:25 (G_III_04) 17:51 (G_III_04)	06:58 16:34	23	15:16 (G_III_07) 15:39 (G_III_07)	07:49 15:55	23	14:46 (G_III_10) 15:09 (G_III_10)
3	04:48 21:26	05:26 20:52		06:16 19:48	22	18:53 (G_III_01) 19:15 (G_III_01)	07:06 18:38	17:24 (G_III_04) 17:52 (G_III_04)	07:00 16:33	24	15:16 (G_III_07) 15:40 (G_III_07)	07:51 15:54	23	14:46 (G_III_10) 15:09 (G_III_10)
4	04:48 21:26	05:28 20:50		06:18 19:46	20	18:54 (G_III_01) 19:14 (G_III_01)	07:07 18:36	17:24 (G_III_04) 17:52 (G_III_04)	07:02 16:31	25	15:15 (G_III_07) 15:40 (G_III_07)	07:52 15:54	22	14:47 (G_III_10) 15:09 (G_III_10)
5	04:49 21:25	05:29 20:48		06:20 19:43	16	18:56 (G_III_01) 19:12 (G_III_01)	07:09 18:33	17:24 (G_III_04) 17:52 (G_III_04)	07:04 16:29	26	15:15 (G_III_07) 15:41 (G_III_07)	07:53 15:53	22	14:47 (G_III_10) 15:09 (G_III_10)
6	04:50 21:25	05:31 20:46		06:21 19:41	9	18:59 (G_III_01) 19:08 (G_III_01)	07:11 18:31	17:23 (G_III_04) 17:51 (G_III_04)	07:06 16:27	26	15:15 (G_III_07) 15:41 (G_III_07)	07:55 15:53	22	14:48 (G_III_10) 15:10 (G_III_10)
7	04:51 21:24	05:32 20:44		06:23 19:39			07:13 18:29	17:23 (G_III_04) 17:51 (G_III_04)	07:07 16:25	26	15:15 (G_III_07) 15:41 (G_III_07)	07:56 15:52	22	14:48 (G_III_10) 15:10 (G_III_10)
8	04:52 21:24	05:34 20:43		06:25 19:37			07:14 18:27	17:23 (G_III_04) 17:50 (G_III_04)	07:09 16:24	26	15:15 (G_III_07) 15:41 (G_III_07)	07:57 15:52	22	14:48 (G_III_10) 15:10 (G_III_10)
9	04:53 21:23	05:36 20:41		06:26 19:34			07:16 18:24	17:22 (G_III_06) 17:50 (G_III_04)	07:11 16:22	26	15:15 (G_III_07) 15:41 (G_III_07)	07:58 15:52	22	14:48 (G_III_10) 15:10 (G_III_10)
10	04:54 21:22	05:37 20:39		06:28 19:32			07:18 18:22	17:19 (G_III_06) 17:48 (G_III_04)	07:13 16:21	26	15:16 (G_III_07) 15:41 (G_III_07)	08:00 15:51	22	14:50 (G_III_10) 15:12 (G_III_10)
11	04:55 21:21	05:39 20:37		06:29 19:30	3	18:29 (G_III_02) 18:32 (G_III_02)	07:19 18:20	17:18 (G_III_06) 17:47 (G_III_04)	07:15 16:19	25	15:16 (G_III_07) 15:41 (G_III_07)	08:01 15:51	22	14:50 (G_III_10) 15:12 (G_III_10)
12	04:56 21:21	05:40 20:35		06:31 19:27	12	18:25 (G_III_02) 18:37 (G_III_02)	07:21 18:18	17:17 (G_III_06) 17:45 (G_III_04)	07:16 16:17	25	15:17 (G_III_07) 15:41 (G_III_07)	08:02 15:51	21	14:51 (G_III_10) 15:12 (G_III_10)
13	04:57 21:20	05:42 20:33		06:33 19:25	16	18:22 (G_III_02) 18:38 (G_III_02)	07:23 18:15	17:17 (G_III_06) 17:43 (G_III_04)	07:18 16:16	24	15:18 (G_III_07) 15:40 (G_III_07)	08:03 15:51	21	14:51 (G_III_10) 15:12 (G_III_10)
14	04:58 21:19	05:44 20:31		06:34 19:23	19	18:20 (G_III_02) 18:39 (G_III_02)	07:25 18:13	17:15 (G_III_06) 17:40 (G_III_04)	07:20 16:14	22	15:19 (G_III_07) 15:40 (G_III_07)	08:04 15:51	21	14:52 (G_III_10) 15:13 (G_III_10)
15	04:59 21:18	05:45 20:29		06:36 19:20	21	18:18 (G_III_02) 18:39 (G_III_02)	07:26 18:11	17:15 (G_III_06) 17:37 (G_III_06)	07:22 16:13	21	15:20 (G_III_07) 15:39 (G_III_07)	08:05 15:51	21	14:52 (G_III_10) 15:13 (G_III_10)
16	05:01 21:17	05:47 20:27		06:38 19:18	22	18:18 (G_III_02) 18:40 (G_III_02)	07:28 18:09	17:15 (G_III_06) 17:37 (G_III_06)	07:23 16:11	19	15:21 (G_III_07) 15:38 (G_III_07)	08:05 15:51	21	14:52 (G_III_10) 15:13 (G_III_10)
17	05:02 21:16	05:49 20:25	19:05 (G_III_01)	06:39 19:15	23	18:17 (G_III_02) 18:40 (G_III_02)	07:30 18:07	17:16 (G_III_06) 17:36 (G_III_06)	07:25 16:10	17	15:23 (G_III_07) 15:37 (G_III_07)	08:06 15:51	20	14:53 (G_III_10) 15:13 (G_III_10)
18	05:03 21:15	05:50 20:23	19:02 (G_III_01)	06:41 19:13	23	18:16 (G_III_02) 18:39 (G_III_02)	07:32 18:05	17:16 (G_III_06) 17:36 (G_III_06)	07:27 16:09	14	15:26 (G_III_07) 15:35 (G_III_07)	08:07 15:52	20	14:54 (G_III_10) 15:14 (G_III_10)
19	05:04 21:13	05:52 20:21	18:59 (G_III_01)	06:43 19:11	23	18:16 (G_III_02) 18:39 (G_III_02)	07:33 18:02	17:17 (G_III_06) 17:34 (G_III_06)	07:29 16:07	9	15:35 (G_III_07) 14:55 (G_III_10)	15:52 15:52	20	15:14 (G_III_10) 15:14 (G_III_10)
20	05:06 21:12	05:53 20:19	18:58 (G_III_01)	06:44 19:08	22	18:16 (G_III_02) 18:38 (G_III_02)	07:35 18:00	17:18 (G_III_06) 17:32 (G_III_06)	07:30 16:06	4	14:55 (G_III_10) 14:48 (G_III_10)	15:52 15:52	19	15:14 (G_III_10) 15:14 (G_III_10)
21	05:07 21:11	05:55 20:17	18:56 (G_III_01)	06:46 19:06	21	18:16 (G_III_02) 18:37 (G_III_02)	07:37 17:58	17:19 (G_III_06) 17:29 (G_III_06)	07:32 16:05	10	14:57 (G_III_10) 15:00 (G_III_10)	08:09 15:53	19	15:14 (G_III_10) 15:15 (G_III_10)
22	05:08 21:10	05:57 20:15	18:56 (G_III_01)	06:47 19:04	20	18:17 (G_III_02) 18:37 (G_III_02)	07:39 17:56	17:22 (G_III_06) 17:27 (G_III_06)	07:34 16:04	13	14:46 (G_III_10) 15:02 (G_III_10)	08:10 15:53	20	15:15 (G_III_10) 15:15 (G_III_10)
23	05:10 21:08	05:58 20:12	18:54 (G_III_01)	06:49 19:01	17	18:17 (G_III_02) 18:34 (G_III_02)	07:40 17:54	17:27 (G_III_06) 17:33 (G_III_06)	16:03 16:02	16	14:46 (G_III_10) 15:03 (G_III_10)	08:10 15:54	19	15:16 (G_III_10) 15:16 (G_III_10)
24	05:11 21:07	06:00 20:10	18:54 (G_III_01)	06:51 18:59	14	18:18 (G_III_02) 18:32 (G_III_02)	07:42 17:52	17:37 (G_III_06) 17:32 (G_III_06)	16:02 16:00	17	14:45 (G_III_10) 15:04 (G_III_10)	08:10 15:54	19	15:16 (G_III_10) 15:16 (G_III_10)
25	05:13 21:06	06:02 20:08	18:52 (G_III_01)	06:52 18:57	9	18:21 (G_III_02) 18:30 (G_III_02)	06:44 16:50	17:39 (G_III_06) 17:33 (G_III_06)	16:01 16:01	19	14:44 (G_III_10) 15:04 (G_III_10)	08:11 15:55	20	15:17 (G_III_10) 15:17 (G_III_10)
26	05:14 21:04	06:03 20:06	18:52 (G_III_01)	06:54 18:54			06:46 16:48	17:40 (G_III_06) 17:40 (G_III_06)	16:01 16:00	20	14:45 (G_III_10) 15:05 (G_III_10)	08:11 15:56	20	15:18 (G_III_10) 15:18 (G_III_10)
27	05:15 21:03	06:05 20:04	18:52 (G_III_01)	06:56 18:52	12	17:34 (G_III_04) 17:46 (G_III_04)	06:48 16:46	17:42 (G_III_06) 17:45 (G_III_06)	16:01 15:59	21	14:45 (G_III_10) 15:06 (G_III_10)	08:11 15:56	20	15:18 (G_III_10) 15:18 (G_III_10)
28	05:17 21:01	06:07 20:01	18:52 (G_III_01)	06:57 18:50	17	17:32 (G_III_04) 17:49 (G_III_04)	06:49 16:44	17:43 (G_III_06) 17:45 (G_III_06)	16:02 15:58	22	14:44 (G_III_10) 15:06 (G_III_10)	08:12 15:57	21	15:19 (G_III_10) 15:19 (G_III_10)
29	05:18 21:00	06:08 19:59	18:52 (G_III_01)	06:59 18:47	20	17:29 (G_III_04) 17:49 (G_III_04)	06:51 16:42	17:45 (G_III_06) 17:45 (G_III_06)	16:03 15:57	22	14:45 (G_III_10) 15:07 (G_III_10)	08:12 15:58	20	15:19 (G_III_10) 15:19 (G_III_10)
30	05:20 20:58	06:10 19:57	18:51 (G_III_01)	07:01 19:20	23	17:28 (G_III_04) 17:51 (G_III_04)	06:53 16:40	17:46 (G_III_06) 17:46 (G_III_06)	16:04 15:56	23	14:45 (G_III_10) 15:08 (G_III_10)	08:12 15:59	21	15:20 (G_III_10) 15:20 (G_III_10)
31	05:21 20:57	06:11 19:55	18:52 (G_III_01)	07:01 19:20			06:55 16:38	17:47 (G_III_06) 17:47 (G_III_06)	16:05 15:58			08:12 16:00	22	15:21 (G_III_10) 15:21 (G_III_10)
Sonnenscheinstunden		503	454	378	454	560	606	243	650					
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)	Minuten mit Schatten	Zeitpunkt (SS:MM)	Schattenanfang	(WEA mit erstem Schatten)
	Sonnenuntergang (SS:MM)		Zeitpunkt (SS:MM)	Schattenende	(WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 22 - Weichensdorf, Dorfstraße 15

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	08:12	07:45	15:46 (G_III_07)	06:51	16:39 (G_III_04)	06:40
	16:01	16:49	20 16:06 (G_III_07)	17:41	15 16:54 (G_III_04)	19:35
2	08:12	07:43	15:47 (G_III_07)	06:49	16:40 (G_III_04)	06:38
	16:02	16:51	18 16:05 (G_III_07)	17:43	12 16:52 (G_III_04)	19:37
3	08:12	07:42	15:49 (G_III_07)	06:47		06:36
	16:03	16:53	16 16:05 (G_III_07)	17:45		19:39
4	08:11	07:40	15:50 (G_III_07)	06:45		06:33
	16:04	16:55	13 16:03 (G_III_07)	17:47		19:41
5	08:11	07:38	15:52 (G_III_07)	06:42		06:31
	16:06	16:57	9 16:01 (G_III_07)	17:48		19:42
6	08:11	07:37		06:40	17:20 (G_III_02)	06:29
	16:07	16:58		17:50	4 17:24 (G_III_02)	19:44
7	08:10	07:35		06:38	17:18 (G_III_02)	06:26
	16:08	17:00		17:52	8 17:26 (G_III_02)	19:46
8	08:10	07:33		06:36	17:17 (G_III_02)	06:24
	16:09	17:02		17:54	11 17:28 (G_III_02)	19:47
9	08:10	07:31		06:33	17:15 (G_III_02)	06:22
	16:11	17:04		17:55	14 17:29 (G_III_02)	19:49
10	08:09	07:30		06:31	17:14 (G_III_02)	06:20
	16:12	17:06		17:57	18 17:32 (G_III_02)	19:51
11	08:08	07:28		06:29	17:14 (G_III_02)	06:17
	16:14	17:08		17:59	19 17:33 (G_III_02)	19:53
12	08:08	07:26		06:26	17:13 (G_III_02)	06:15
	16:15	17:10		18:01	19 17:32 (G_III_02)	19:54
13	08:07	07:24		06:24	17:14 (G_III_02)	06:13
	16:17	17:12		18:03	18 17:32 (G_III_02)	19:56
14	08:06	07:22		06:22	17:14 (G_III_02)	06:11
	16:18	17:13		18:04	18 17:32 (G_III_02)	19:58
15	08:05	07:20		06:20	17:14 (G_III_02)	06:08
	16:20	17:15		18:06	16 17:30 (G_III_02)	19:59
16	08:05	07:18	16:46 (G_III_04)	06:17	17:16 (G_III_02)	06:06
	16:21	17:17	3 16:49 (G_III_04)	18:08	12 17:28 (G_III_02)	20:01
17	08:04	07:16	16:42 (G_III_04)	06:15	17:18 (G_III_02)	06:04
	16:23	17:19	10 16:52 (G_III_04)	18:10	8 17:26 (G_III_02)	20:03
18	08:03	15:50 (G_III_07)	07:14	16:40 (G_III_04)	06:13	17:36 (G_III_01)
	16:24	1 15:51 (G_III_07)	17:21	16:54 (G_III_04)	18:11	9 17:45 (G_III_01)
19	08:02	15:48 (G_III_07)	07:12	16:38 (G_III_04)	06:10	17:33 (G_III_01)
	16:26	5 15:53 (G_III_07)	17:23	16:55 (G_III_04)	18:13	15 17:48 (G_III_01)
20	08:01	15:47 (G_III_07)	07:10	16:37 (G_III_04)	06:08	17:32 (G_III_01)
	16:28	8 15:55 (G_III_07)	17:25	16:57 (G_III_04)	18:15	18 17:50 (G_III_01)
21	08:00	15:46 (G_III_07)	07:08	16:37 (G_III_04)	06:06	17:29 (G_III_01)
	16:29	11 15:57 (G_III_07)	17:26	16:58 (G_III_04)	18:17	21 17:50 (G_III_01)
22	07:58	15:45 (G_III_07)	07:06	16:36 (G_III_04)	06:03	17:29 (G_III_01)
	16:31	14 15:59 (G_III_07)	17:28	16:58 (G_III_04)	18:18	22 17:51 (G_III_01)
23	07:57	15:45 (G_III_07)	07:04	16:36 (G_III_04)	06:01	17:28 (G_III_01)
	16:33	16 16:01 (G_III_07)	17:30	16:58 (G_III_04)	18:20	23 17:51 (G_III_01)
24	07:56	15:45 (G_III_07)	07:02	16:36 (G_III_04)	05:59	17:27 (G_III_01)
	16:35	18 16:03 (G_III_07)	17:32	16:59 (G_III_04)	18:22	24 17:51 (G_III_01)
25	07:55	15:45 (G_III_07)	07:00	16:36 (G_III_04)	05:56	17:27 (G_III_01)
	16:36	19 16:04 (G_III_07)	17:34	16:58 (G_III_04)	18:23	24 17:51 (G_III_01)
26	07:53	15:45 (G_III_07)	06:58	16:36 (G_III_04)	05:54	17:27 (G_III_01)
	16:38	20 16:05 (G_III_07)	17:36	16:57 (G_III_04)	18:25	24 17:51 (G_III_01)
27	07:52	15:45 (G_III_07)	06:55	16:37 (G_III_04)	05:52	17:26 (G_III_01)
	16:40	20 16:05 (G_III_07)	17:37	16:57 (G_III_04)	18:27	23 17:49 (G_III_01)
28	07:51	15:45 (G_III_07)	06:53	16:38 (G_III_04)	05:49	17:27 (G_III_01)
	16:42	21 16:06 (G_III_07)	17:39	16:56 (G_III_04)	18:29	22 17:49 (G_III_01)
29	07:49	15:45 (G_III_07)		06:47		18:28 (G_III_01)
	16:44	21 16:06 (G_III_07)		19:30	20 18:48 (G_III_01)	20:23
30	07:48	15:45 (G_III_07)		06:45		18:28 (G_III_01)
	16:45	21 16:06 (G_III_07)		19:32	18 18:46 (G_III_01)	20:25
31	07:46	15:46 (G_III_07)		06:42		18:30 (G_III_01)
	16:47	20 16:06 (G_III_07)		19:34	14 18:44 (G_III_01)	
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	215	309	469	70		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 22 - Weichensdorf, Dorfstraße 15

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

	Juli	August	September		Oktober		November		Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53		07:02 18:43	19	17:53 (G_III_02) 18:12 (G_III_02)	06:57 16:36	07:48 15:55
2	04:47 21:27	05:25 20:53	06:15 19:50		07:04 18:40	19	17:52 (G_III_02) 18:11 (G_III_02)	06:58 16:34	07:49 15:55
3	04:48 21:26	05:26 20:52	06:16 19:48		07:06 18:38	18	17:52 (G_III_02) 18:10 (G_III_02)	07:00 16:33	07:51 15:54
4	04:48 21:26	05:28 20:50	06:18 19:46		07:07 18:36	16	17:52 (G_III_02) 18:08 (G_III_02)	07:02 16:31	07:52 15:54
5	04:49 21:25	05:29 20:48	06:20 19:43		07:09 18:33	13	17:53 (G_III_02) 18:06 (G_III_02)	07:04 16:29	15:25 (G_III_07) 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41		07:11 18:31	10	17:53 (G_III_02) 18:03 (G_III_02)	07:06 16:27	15:21 (G_III_07) 15:53
7	04:51 21:24	05:32 20:44	06:23 19:39		07:13 18:29	6	17:55 (G_III_02) 18:01 (G_III_02)	07:07 16:25	11 15:32 (G_III_07) 15:52
8	04:52 21:24	05:34 20:43	06:25 19:36		07:14 18:27	1	17:58 (G_III_02) 17:59 (G_III_02)	07:09 16:24	13 15:33 (G_III_07) 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34		07:16 18:24			07:11 16:22	17 15:35 (G_III_07) 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32		07:18 18:22			07:13 16:20	18 15:36 (G_III_07) 15:51
11	04:55 21:21	05:39 20:37	06:29 19:30	9	18:25 (G_III_01) 18:34 (G_III_01)	8	17:16 (G_III_04) 17:24 (G_III_04)	07:15 16:19	19 15:36 (G_III_07) 15:51
12	04:56 21:21	05:40 20:35	06:31 19:27	14	18:22 (G_III_01) 18:36 (G_III_01)	14	17:13 (G_III_04) 17:27 (G_III_04)	07:16 16:17	20 15:37 (G_III_07) 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	18	18:19 (G_III_01) 18:37 (G_III_01)	17	17:11 (G_III_04) 17:28 (G_III_04)	07:18 16:16	21 15:37 (G_III_07) 15:51
14	04:58 21:19	05:44 20:31	06:34 19:23	20	18:18 (G_III_01) 18:38 (G_III_01)	19	17:09 (G_III_04) 17:28 (G_III_04)	07:20 16:14	22 15:38 (G_III_07) 15:51
15	04:59 21:18	05:45 20:29	06:36 19:20	22	18:16 (G_III_01) 18:38 (G_III_01)	21	17:08 (G_III_04) 17:29 (G_III_04)	07:22 16:13	23 15:38 (G_III_07) 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	23	18:16 (G_III_01) 18:39 (G_III_01)	21	17:08 (G_III_04) 17:29 (G_III_04)	07:23 16:11	24 15:38 (G_III_07) 15:51
17	05:02 21:16	05:49 20:25	06:39 19:15	24	18:15 (G_III_01) 18:39 (G_III_01)	23	17:07 (G_III_04) 17:30 (G_III_04)	07:25 16:10	25 15:39 (G_III_07) 15:51
18	05:03 21:15	05:50 20:23	06:41 19:13	24	18:14 (G_III_01) 18:38 (G_III_01)	23	17:07 (G_III_04) 17:30 (G_III_04)	07:27 16:09	26 15:39 (G_III_07) 15:52
19	05:04 21:13	05:52 20:21	06:43 19:11	24	18:14 (G_III_01) 18:38 (G_III_01)	23	17:07 (G_III_04) 17:30 (G_III_04)	07:29 16:07	27 15:37 (G_III_07) 15:52
20	05:06 21:12	05:53 20:19	06:44 19:08	23	18:14 (G_III_01) 18:37 (G_III_01)	21	17:08 (G_III_04) 17:29 (G_III_04)	07:30 16:06	28 15:35 (G_III_07) 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	23	18:14 (G_III_01) 18:37 (G_III_01)	21	17:07 (G_III_04) 17:28 (G_III_04)	07:32 16:05	29 15:34 (G_III_07) 15:53
22	05:08 21:10	05:57 20:15	06:47 19:04	21	18:15 (G_III_01) 18:36 (G_III_01)	19	17:08 (G_III_04) 17:27 (G_III_04)	07:34 16:04	30 15:33 (G_III_07) 15:53
23	05:10 21:08	05:58 20:12	06:49 19:01	19	18:15 (G_III_01) 18:34 (G_III_01)	16	17:09 (G_III_04) 17:25 (G_III_04)	07:35 16:03	31 15:25 (G_III_07) 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	16	18:16 (G_III_01) 18:32 (G_III_01)	13	17:10 (G_III_04) 17:23 (G_III_04)	07:37 16:02	1 15:28 (G_III_07) 15:54
25	05:13 21:06	06:02 20:08	06:52 18:57	11	18:19 (G_III_01) 18:30 (G_III_01)	9	16:12 (G_III_04) 16:21 (G_III_04)	07:39 16:01	2 15:29 (G_III_07) 15:55
26	05:14 21:04	06:03 20:06	06:54 18:54	5	18:01 (G_III_02) 18:06 (G_III_02)			07:40 16:00	3 15:56 (G_III_07) 15:56
27	05:15 21:03	06:05 20:04	06:56 18:52	11	17:58 (G_III_02) 18:09 (G_III_02)			07:42 15:59	4 15:57 (G_III_07) 15:56
28	05:17 21:01	06:07 20:01	06:57 18:50	15	17:56 (G_III_02) 18:11 (G_III_02)			07:43 15:58	5 15:58 (G_III_07) 15:57
29	05:18 21:00	06:08 19:59	06:59 18:47	17	17:54 (G_III_02) 18:11 (G_III_02)			07:45 15:57	6 15:59 (G_III_07) 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	18	17:54 (G_III_02) 18:12 (G_III_02)			07:46 15:56	7 15:59 (G_III_07) 15:59
31	05:21 20:57	06:11 19:55			06:55 16:38				8 16:00 (G_III_07) 16:00
Sonnenscheinstunden	503	454	381		331		266		243
astr.max.mögl.Beschattung			357		370		297		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 23 - Weichensdorf, Dorfstraße 15A

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni
1	08:12 16:01	07:45 16:49	15:50 (G_III_07) 06:51 16:06 (G_III_07) 17:41	06:40 19:35	05:35 20:27	04:49 21:13
2	08:12 16:02	07:43 16:51	15:50 (G_III_07) 06:49 16:05 (G_III_07) 17:43	06:38 19:37	05:33 20:28	04:48 21:14
3	08:12 16:03	07:42 16:53	15:53 (G_III_07) 06:47 16:04 (G_III_07) 17:45	06:36 19:39	05:31 20:30	04:48 21:15
4	08:11 16:04	07:40 16:55	15:55 (G_III_07) 06:45 16:02 (G_III_07) 17:47	06:33 19:41	05:29 20:32	04:47 21:16
5	08:11 16:06	07:38 16:57	17:47 17:48	06:31 19:42	05:27 20:33	04:46 21:17
6	08:11 16:07	07:37 16:58	06:40 17:50	06:29 19:44	05:26 20:35	04:46 21:18
7	08:10 16:08	07:35 17:00	06:38 17:52	06:26 19:46	05:24 20:37	04:45 21:19
8	08:10 16:09	07:33 17:02	06:36 17:54	06:24 19:47	05:22 20:38	04:44 21:20
9	08:10 16:11	07:31 17:04	06:33 17:55	06:22 19:49	05:20 20:40	04:44 21:21
10	08:09 16:12	07:30 17:06	06:31 17:57	06:20 19:51	05:18 20:42	04:44 21:22
11	08:08 16:14	07:28 17:08	06:29 17:59	06:17 19:53	05:17 20:43	04:43 21:22
12	08:08 16:15	07:26 17:10	06:26 18:01	06:15 19:54	05:15 20:45	04:43 21:23
13	08:07 16:17	07:24 17:12	06:24 18:03	06:13 19:56	05:13 20:46	04:43 21:24
14	08:06 16:18	07:22 17:13	16:42 (G_III_04) 06:22 16:46 (G_III_04) 18:04	17:32 (G_III_01) 06:11 17:37 (G_III_01) 19:58	05:12 20:48	04:42 21:24
15	08:05 16:20	07:20 17:15	16:40 (G_III_04) 06:20 16:48 (G_III_04) 18:06	17:26 (G_III_01) 06:08 17:40 (G_III_01) 19:59	05:10 20:50	04:42 21:25
16	08:05 16:21	07:18 17:17	16:38 (G_III_04) 06:17 16:50 (G_III_04) 18:08	17:25 (G_III_01) 06:06 17:42 (G_III_01) 20:01	05:09 20:51	04:42 21:25
17	08:04 16:23	07:16 17:19	16:37 (G_III_04) 06:15 16:52 (G_III_04) 18:10	17:24 (G_III_01) 06:04 17:44 (G_III_01) 20:03	05:07 20:53	04:42 21:26
18	08:03 16:24	07:14 17:21	16:36 (G_III_04) 06:13 16:54 (G_III_04) 18:11	17:22 (G_III_01) 06:02 17:44 (G_III_01) 20:05	05:06 20:54	04:42 21:26
19	08:02 16:26	07:12 17:23	16:35 (G_III_04) 06:10 16:55 (G_III_04) 18:13	17:22 (G_III_01) 06:00 17:44 (G_III_01) 20:06	05:04 20:56	04:42 21:27
20	08:01 16:28	07:10 17:25	16:34 (G_III_04) 06:08 16:55 (G_III_04) 18:15	17:22 (G_III_01) 05:58 17:44 (G_III_01) 20:08	05:03 20:57	04:42 21:27
21	08:00 16:29	07:08 17:26	16:34 (G_III_04) 06:06 16:55 (G_III_04) 18:17	17:21 (G_III_01) 05:55 17:43 (G_III_01) 20:10	05:02 20:59	04:42 21:27
22	07:58 16:31	07:06 17:28	16:35 (G_III_04) 06:03 16:55 (G_III_04) 18:18	17:22 (G_III_01) 05:53 17:43 (G_III_01) 20:11	05:00 21:00	04:42 21:27
23	07:57 16:33	07:04 17:30	16:35 (G_III_04) 06:01 16:55 (G_III_04) 18:20	17:23 (G_III_01) 05:51 17:42 (G_III_01) 20:13	04:59 21:01	04:43 21:28
24	07:56 16:35	07:02 17:32	16:36 (G_III_04) 05:59 16:54 (G_III_04) 18:22	17:23 (G_III_01) 05:49 17:40 (G_III_01) 20:15	04:58 21:03	04:43 21:28
25	07:55 16:36	07:00 17:34	16:37 (G_III_04) 05:56 16:53 (G_III_04) 18:23	17:24 (G_III_01) 05:47 17:39 (G_III_01) 20:17	04:57 21:04	04:43 21:28
26	07:53 16:38	06:58 17:36	16:37 (G_III_04) 05:54 16:51 (G_III_04) 18:25	17:27 (G_III_01) 05:45 17:36 (G_III_01) 20:18	04:55 21:06	04:44 21:28
27	07:52 16:40	06:55 17:37	16:39 (G_III_04) 05:52 16:49 (G_III_04) 18:27	05:43 20:20	04:54 21:07	04:44 21:28
28	07:51 16:42	06:53 17:39	05:49 18:29	05:41 20:22	04:53 21:08	04:44 21:28
29	07:49 16:44	15:48 (G_III_07) 06:47 16:07 (G_III_07) 19:30	06:47 19:30	05:39 20:23	04:52 21:09	04:45 21:27
30	07:48 16:45	15:48 (G_III_07) 06:45 16:06 (G_III_07) 19:32	06:45 19:32	05:37 20:25	04:51 21:11	04:46 21:27
31	07:46 16:47	15:49 (G_III_07) 06:42 16:06 (G_III_07) 19:34	06:42 19:34		04:50 21:12	
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	190	266	235			

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 23 - Weichensdorf, Dorfstraße 15A

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

	Juli	August	September		Oktober		November		Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53		07:02 18:43		06:57 16:36		07:48 15:55
2	04:47 21:27	05:25 20:53	06:15 19:50		07:04 18:40		06:58 16:34		07:49 15:55
3	04:48 21:26	05:26 20:52	06:16 19:48		07:06 18:38		07:00 16:33		07:51 15:54
4	04:48 21:26	05:28 20:50	06:18 19:46		07:07 18:36		07:02 16:31		07:52 15:54
5	04:49 21:25	05:29 20:48	06:20 19:43		07:09 18:33		07:04 16:29		07:53 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41		07:11 18:31		07:06 16:27		07:55 15:53
7	04:51 21:24	05:32 20:44	06:23 19:39		07:13 18:29		07:07 16:25	15:24 (G_III_07)	07:56 15:52
8	04:52 21:24	05:34 20:43	06:25 19:36		07:14 18:27		07:09 16:24	15:22 (G_III_07)	07:57 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34		07:16 18:24		07:11 16:22	12 15:21 (G_III_07)	07:58 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32		07:18 18:22		07:13 16:20	14 15:35 (G_III_07)	08:00 15:51
11	04:55 21:21	05:39 20:37	06:29 19:30		07:19 18:20		07:15 16:19	17 15:37 (G_III_07)	08:01 15:51
12	04:56 21:21	05:40 20:35	06:31 19:27		07:21 18:18		07:16 16:17	18 15:38 (G_III_07)	08:02 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25		07:23 18:15		07:18 16:16	19 15:39 (G_III_07)	08:03 15:51
14	04:58 21:19	05:44 20:31	06:34 19:23		07:25 18:13	17:14 (G_III_04)	07:20 16:14	19 15:38 (G_III_07)	08:04 15:51
15	04:59 21:18	05:45 20:29	06:36 19:20		07:26 18:11	17:11 (G_III_04)	07:22 16:13	19 15:39 (G_III_07)	08:05 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18		07:28 18:09	17:09 (G_III_04)	07:23 16:11	19 15:39 (G_III_07)	08:05 15:51
17	05:02 21:16	05:49 20:25	06:39 19:15	18:16 (G_III_01)	07:30 18:07	17:08 (G_III_04)	07:25 16:10	18 15:39 (G_III_07)	08:06 15:51
18	05:03 21:15	05:50 20:23	06:41 19:13	8 18:24 (G_III_01)	07:32 18:04	17:07 (G_III_04)	07:27 16:09	18 15:37 (G_III_07)	08:07 15:52
19	05:04 21:13	05:52 20:21	06:43 19:11	14 18:26 (G_III_01)	07:33 18:02	17:06 (G_III_04)	07:29 16:07	16 15:37 (G_III_07)	08:08 15:52
20	05:06 21:12	05:53 20:19	06:44 19:08	17 18:27 (G_III_01)	07:35 18:00	17:26 (G_III_04)	07:30 16:06	14 15:35 (G_III_07)	08:08 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	19 18:28 (G_III_01)	07:37 17:58	17:06 (G_III_04)	07:32 16:05	12 15:34 (G_III_07)	08:09 15:53
22	05:08 21:10	05:57 20:15	06:47 19:04	20 18:29 (G_III_01)	07:39 17:56	17:05 (G_III_04)	07:34 16:04	10 15:33 (G_III_07)	08:09 15:53
23	05:10 21:08	05:58 20:12	06:49 19:01	22 18:28 (G_III_01)	07:40 17:54	17:25 (G_III_04)	07:35 16:03	6 15:31 (G_III_07)	08:10 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	17 18:27 (G_III_01)	07:42 17:52	17:06 (G_III_04)	07:37 16:02	4 15:30 (G_III_07)	08:10 15:54
25	05:13 21:06	06:02 20:08	06:52 18:57	22 18:28 (G_III_01)	06:44 16:50	17:23 (G_III_04)	07:39 16:01		08:11 15:55
26	05:14 21:04	06:03 20:06	06:54 18:54	22 18:05 (G_III_01)	06:46 16:48	16:07 (G_III_04)	07:40 16:00		08:11 15:56
27	05:15 21:03	06:05 20:04	06:56 18:52	21 18:26 (G_III_01)	06:48 16:46	16:21 (G_III_04)	07:42 15:59		08:11 15:56
28	05:17 21:01	06:07 20:01	06:57 18:50	19 18:25 (G_III_01)	06:49 16:44	16:19 (G_III_04)	07:43 15:58		08:12 15:57
29	05:18 21:00	06:08 19:59	06:59 18:47	22 18:07 (G_III_01)	06:51 16:42	16:17 (G_III_04)	07:45 15:57		08:12 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	12 18:20 (G_III_01)	06:53 16:40	16:13 (G_III_04)	07:46 15:56		08:12 15:59
31	05:21 20:57	06:11 19:55		8 18:18 (G_III_01)	06:55 16:38	16:15 (G_III_04)			08:12 16:00
Sonnenscheinstunden	503	454	381		331		266		243
astr.max.mögl.Beschattung			242		218		242		

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 24 - Weichensdorf, Dorfstraße 10A

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	08:12 16:01	07:45 16:49	06:51 17:41	06:40 19:35	05:35 20:27	04:49 21:13	
2	08:12 16:02	07:43 16:51	06:49 17:43	06:38 19:37	05:33 20:28	04:48 21:14	
3	08:12 16:03	07:42 16:53	06:47 17:45	06:36 19:39	05:31 20:30	04:48 21:15	
4	08:11 16:04	07:40 16:55	06:45 17:47	06:33 19:41	05:29 20:32	04:47 21:16	
5	08:11 16:06	07:38 16:57	06:42 17:48	06:31 19:42	05:27 20:33	04:46 21:17	
6	08:11 16:07	07:37 16:58	06:40 17:50	06:29 19:44	05:26 20:35	04:46 21:18	
7	08:10 16:08	07:35 17:00	06:38 17:52	06:26 19:46	05:24 20:37	04:45 21:19	
8	08:10 16:09	07:33 17:02	06:36 17:54	06:24 19:47	05:22 20:38	04:44 21:20	
9	08:10 16:11	07:31 17:04	06:33 17:55	06:22 19:49	05:20 20:40	04:44 21:21	
10	08:09 16:12	07:30 17:06	06:31 17:57	17:26 (G_III_01) 17:32 (G_III_01)	06:20 19:51	05:18 20:42	04:44 21:22
11	08:08 16:14	07:28 17:08	06:29 17:59	17:23 (G_III_01) 17:34 (G_III_01)	06:17 19:53	05:17 20:43	04:43 21:22
12	08:08 16:15	07:26 17:10	16:36 (G_III_04) 16:42 (G_III_04)	17:21 (G_III_01) 17:35 (G_III_01)	06:15 19:54	05:15 20:45	04:43 21:23
13	08:07 16:17	07:24 17:12	16:34 (G_III_04) 16:44 (G_III_04)	17:19 (G_III_01) 17:37 (G_III_01)	06:13 19:56	05:13 20:46	04:43 21:24
14	08:06 16:18	07:22 17:13	16:32 (G_III_04) 16:46 (G_III_04)	17:19 (G_III_01) 17:39 (G_III_01)	06:11 19:58	05:12 20:48	04:42 21:24
15	08:05 16:20	07:20 17:15	16:32 (G_III_04) 16:48 (G_III_04)	17:17 (G_III_01) 17:39 (G_III_01)	06:08 19:59	05:10 20:50	04:42 21:25
16	08:05 16:21	07:18 17:17	16:31 (G_III_04) 16:50 (G_III_04)	17:17 (G_III_01) 17:39 (G_III_01)	06:06 20:01	05:09 20:51	04:42 21:25
17	08:04 16:23	07:16 17:19	16:31 (G_III_04) 16:51 (G_III_04)	17:17 (G_III_01) 17:39 (G_III_01)	06:04 20:03	05:07 20:53	04:42 21:26
18	08:03 16:24	07:14 17:21	16:31 (G_III_04) 16:51 (G_III_04)	17:16 (G_III_01) 17:38 (G_III_01)	06:02 20:05	05:06 20:54	04:42 21:26
19	08:02 16:26	07:12 17:23	16:30 (G_III_04) 16:50 (G_III_04)	17:17 (G_III_01) 17:37 (G_III_01)	06:00 20:06	05:04 20:56	04:42 21:27
20	08:01 16:28	07:10 17:25	16:30 (G_III_04) 16:50 (G_III_04)	17:18 (G_III_01) 17:37 (G_III_01)	05:58 20:08	05:03 20:57	04:42 21:27
21	08:00 16:29	07:08 17:26	16:31 (G_III_04) 16:49 (G_III_04)	17:18 (G_III_01) 17:35 (G_III_01)	05:55 20:10	05:02 20:59	04:42 21:27
22	07:58 16:31	07:06 17:28	16:31 (G_III_04) 16:49 (G_III_04)	17:20 (G_III_01) 17:33 (G_III_01)	05:53 20:11	05:00 21:00	04:42 21:27
23	07:57 16:33	07:04 17:30	16:33 (G_III_04) 16:47 (G_III_04)	17:23 (G_III_01) 17:30 (G_III_01)	05:51 20:13	04:59 21:01	04:43 21:28
24	07:56 16:35	07:02 17:32	16:35 (G_III_04) 16:46 (G_III_04)		05:49 20:15	04:58 21:03	04:43 21:28
25	07:55 16:36	07:00 17:34	16:38 (G_III_04) 16:42 (G_III_04)		05:47 20:17	04:57 21:04	04:43 21:28
26	07:53 16:38	06:58 17:36			05:45 20:18	04:55 21:06	04:44 21:28
27	07:52 16:40	06:55 17:37			05:43 20:20	04:54 21:07	04:44 21:28
28	07:51 16:42	06:53 17:39			05:41 20:22	04:53 21:08	04:44 21:28
29	07:49 16:44				05:39 20:23	04:52 21:09	04:45 21:27
30	07:48 16:45				05:37 20:25	04:51 21:11	04:46 21:27
31	07:46 16:47					04:50 21:12	
Sonnenscheinstunden	258	277			416		
astr.max.mögl.Beschattung		210	367	233		486	500

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 Layout GIII_33 Schattenrezeptor: IO 24 - Weichensdorf, Dorfstraße 10A

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

	Jul	August	September		Oktober		November	Dezember
1	04:46	05:23	06:13		07:02	18:00 (G_III_01)	06:57	07:48
	21:27	20:55	19:53		18:43	16 18:16 (G_III_01)	16:36	15:55
2	04:47	05:25	06:15		07:04	18:00 (G_III_01)	06:58	07:49
	21:27	20:53	19:50		18:40	12 18:12 (G_III_01)	16:34	15:55
3	04:48	05:26	06:16		07:06	18:02 (G_III_01)	07:00	07:51
	21:26	20:52	19:48		18:38	8 18:10 (G_III_01)	16:32	15:54
4	04:48	05:28	06:18		07:07		07:02	07:52
	21:26	20:50	19:46		18:36		16:31	15:54
5	04:49	05:29	06:20		07:09		07:04	07:53
	21:25	20:48	19:43		18:33		16:29	15:53
6	04:50	05:31	06:21		07:11		07:06	07:55
	21:25	20:46	19:41		18:31		16:27	15:53
7	04:51	05:32	06:23		07:13		07:07	07:56
	21:24	20:44	19:39		18:29		16:25	15:52
8	04:52	05:34	06:25		07:14		07:09	07:57
	21:24	20:43	19:36		18:27		16:24	15:52
9	04:53	05:36	06:26		07:16		07:11	07:58
	21:23	20:41	19:34		18:24		16:22	15:52
10	04:54	05:37	06:28		07:18		07:13	08:00
	21:22	20:39	19:32		18:22		16:20	15:51
11	04:55	05:39	06:29		07:19		07:15	08:01
	21:21	20:37	19:30		18:20		16:19	15:51
12	04:56	05:40	06:31		07:21		07:16	08:02
	21:21	20:35	19:27		18:18		16:17	15:51
13	04:57	05:42	06:33		07:23		07:18	08:03
	21:20	20:33	19:25		18:15		16:16	15:51
14	04:58	05:44	06:34		07:25		07:20	08:04
	21:19	20:31	19:23		18:13		16:14	15:51
15	04:59	05:45	06:36		07:26		07:22	08:05
	21:18	20:29	19:20		18:11		16:13	15:51
16	05:01	05:47	06:38		07:28		07:23	08:05
	21:17	20:27	19:18		18:09		16:11	15:51
17	05:02	05:48	06:39		07:30	17:08 (G_III_04)	07:25	08:06
	21:16	20:25	19:15		18:07	7 17:15 (G_III_04)	16:10	15:51
18	05:03	05:50	06:41		07:32	17:05 (G_III_04)	07:27	08:07
	21:15	20:23	19:13		18:04	13 17:18 (G_III_04)	16:09	15:52
19	05:04	05:52	06:43		07:33	17:04 (G_III_04)	07:29	08:08
	21:13	20:21	19:11		18:02	15 17:19 (G_III_04)	16:07	15:52
20	05:06	05:53	06:44	18:09 (G_III_01)	07:35	17:02 (G_III_04)	07:30	08:08
	21:12	20:19	19:08	5 18:14 (G_III_01)	18:00	18 17:20 (G_III_04)	16:06	15:52
21	05:07	05:55	06:46	18:06 (G_III_01)	07:37	17:01 (G_III_04)	07:32	08:09
	21:11	20:17	19:06	12 18:18 (G_III_01)	17:58	19 17:20 (G_III_04)	16:05	15:53
22	05:08	05:57	06:47	18:04 (G_III_01)	07:39	17:00 (G_III_04)	07:34	08:09
	21:10	20:15	19:04	16 18:20 (G_III_01)	17:56	20 17:20 (G_III_04)	16:04	15:53
23	05:10	05:58	06:49	18:02 (G_III_01)	07:40	17:00 (G_III_04)	07:35	08:10
	21:08	20:12	19:01	18 18:20 (G_III_01)	17:54	20 17:20 (G_III_04)	16:03	15:54
24	05:11	06:00	06:51	18:01 (G_III_01)	07:42	17:00 (G_III_04)	07:37	08:10
	21:07	20:10	18:59	20 18:21 (G_III_01)	17:52	20 17:20 (G_III_04)	16:02	15:54
25	05:13	06:02	06:52	18:00 (G_III_01)	06:44	16:00 (G_III_04)	07:39	08:11
	21:06	20:08	18:57	21 18:21 (G_III_01)	16:50	20 16:20 (G_III_04)	16:01	15:55
26	05:14	06:03	06:54	17:59 (G_III_01)	06:46	16:01 (G_III_04)	07:40	08:11
	21:04	20:06	18:54	22 18:21 (G_III_01)	16:48	18 16:19 (G_III_04)	16:00	15:56
27	05:15	06:05	06:56	17:59 (G_III_01)	06:48	16:01 (G_III_04)	07:42	08:11
	21:03	20:04	18:52	22 18:21 (G_III_01)	16:46	16 16:17 (G_III_04)	15:59	15:56
28	05:17	06:07	06:57	17:59 (G_III_01)	06:49	16:02 (G_III_04)	07:43	08:12
	21:01	20:01	18:50	21 18:20 (G_III_01)	16:44	13 16:15 (G_III_04)	15:58	15:57
29	05:18	06:08	06:59	17:58 (G_III_01)	06:51	16:04 (G_III_04)	07:45	08:12
	21:00	19:59	18:47	21 18:19 (G_III_01)	16:42	9 16:13 (G_III_04)	15:57	15:58
30	05:20	06:10	07:01	17:59 (G_III_01)	06:53	16:06 (G_III_04)	07:46	08:12
	20:58	19:57	18:45	19 18:18 (G_III_01)	16:40	5 16:11 (G_III_04)	15:56	15:59
31	05:21	06:11			06:55			08:12
	20:57	19:55			16:38			16:00
Sonnenscheinstunden	503	454	381		331		266	243
astr.max.mögl.Beschattung			197		249			

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 Layout GIII_33 Schattenrezeptor: IO 25 - Weichensdorf, Dorfstraße 1
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	08:12	07:45		06:51	16	16:46 (G.III_01)	06:40	05:35	04:49	04:46	05:23	06:13	07:02	06:57	07:48		
	16:01	16:49		17:41		17:02 (G.III_01)	19:35	20:27	21:13	21:27	20:55	19:53	18:43	16:36	15:55		
2	08:12	07:43		06:49		16:47 (G.III_01)	06:38	05:33	04:48	04:47	05:24	06:15	07:04	06:58	07:49		
	16:02	16:51		17:43	12	16:59 (G.III_01)	19:37	20:28	21:14	21:27	20:53	19:50	18:40	16:34	15:55		
3	08:12	07:42		06:47		16:50 (G.III_01)	06:36	05:31	04:48	04:48	05:26	06:16	07:06	07:00	07:51		
	16:03	16:53		17:45	7	16:57 (G.III_01)	19:39	20:30	21:15	21:26	20:52	19:48	18:38	16:32	15:54		
4	08:11	07:40		06:45			06:33	05:29	04:47	04:48	05:28	06:18	07:07	07:02	07:52		
	16:04	16:55		17:47			19:41	20:32	21:16	21:26	20:50	19:46	18:36	16:31	15:54		
5	08:11	07:38		06:42			06:31	05:27	04:46	04:49	05:29	06:20	07:09	07:04	07:53		
	16:06	16:57		17:48			19:42	20:33	21:17	21:25	20:48	19:43	18:33	16:29	15:53		
6	08:11	07:37		06:40			06:29	05:26	04:46	04:50	05:31	06:21	07:11	07:06	07:55		
	16:07	16:58		17:50			19:44	20:35	21:18	21:25	20:46	19:41	18:31	16:27	15:53		
7	08:10	07:35		06:38			06:26	05:24	04:45	04:51	05:32	06:23	07:13	07:07	07:56		
	16:08	17:00		17:52			19:46	20:37	21:19	21:24	20:44	19:39	18:29	16:25	15:52		
8	08:10	07:33		06:36			06:24	05:22	04:44	04:52	05:34	06:25	07:14	07:09	07:57		
	16:09	17:02		17:54			19:47	20:38	21:20	21:24	20:43	19:36	18:27	16:24	15:52		
9	08:10	07:31		06:33			06:22	05:20	04:44	04:53	05:36	06:26	07:16	07:11	07:58		
	16:11	17:04		17:55			19:49	20:40	21:21	21:23	20:41	19:34	18:24	16:22	15:52		
10	08:09	07:30		06:31			06:20	05:18	04:43	04:54	05:37	06:28	07:18	07:13	08:00		
	16:12	17:06		17:57			19:51	20:42	21:22	21:22	20:39	19:32	18:22	16:20	15:51		
11	08:08	07:28		06:29			06:17	05:17	04:43	04:55	05:39	06:29	07:19	17:23 (G.III_01)	07:15	08:01	
	16:14	17:08		17:59			19:53	20:43	21:22	21:21	20:37	19:30	18:20	9	17:32 (G.III_01)	16:19	15:51
12	08:08	07:26		06:26			06:15	05:15	04:43	04:56	05:40	06:31	07:21	17:20 (G.III_01)	07:16	08:02	
	16:15	17:10		18:01			19:54	20:45	21:23	21:21	20:35	19:27	18:18	14	17:34 (G.III_01)	16:17	15:51
13	08:07	07:24		06:24			06:13	05:13	04:42	04:57	05:42	06:33	07:23	17:19 (G.III_01)	07:18	08:03	
	16:17	17:12		18:03			19:56	20:46	21:24	21:20	20:33	19:25	18:15	16	17:35 (G.III_01)	16:16	15:51
14	08:06	07:22		06:22			06:11	05:12	04:42	04:58	05:44	06:34	07:25	17:17 (G.III_01)	07:20	08:04	
	16:18	17:13		18:04			19:58	20:48	21:24	21:19	20:31	19:23	18:13	18	17:35 (G.III_01)	16:14	15:51
15	08:05	07:20		06:20			06:08	05:10	04:42	04:59	05:45	06:36	07:26	17:17 (G.III_01)	07:22	08:05	
	16:20	17:15		18:06			19:59	20:50	21:25	21:19	20:29	19:20	18:11	19	17:36 (G.III_01)	16:13	15:51
16	08:05	07:18		06:17			06:06	05:09	04:42	05:01	05:47	06:38	07:28	17:16 (G.III_01)	07:23	08:05	
	16:21	17:17		18:08			20:01	20:51	21:25	21:17	20:27	19:18	18:09	20	17:36 (G.III_01)	16:11	15:51
17	08:04	07:16		06:15			06:04	05:07	04:42	05:02	05:48	06:39	07:30	17:16 (G.III_01)	07:25	08:06	
	16:23	17:19		18:10			20:03	20:53	21:26	21:16	20:25	19:15	18:07	20	17:36 (G.III_01)	16:10	15:51
18	08:03	07:14		06:13			06:02	05:06	04:42	05:03	05:50	06:41	07:32	17:16 (G.III_01)	07:27	08:07	
	16:24	17:21		18:11			20:05	20:54	21:26	21:15	20:23	19:13	18:04	20	17:36 (G.III_01)	16:09	15:52
19	08:02	07:12		06:10		16:50 (G.III_01)	06:00	05:04	04:42	05:04	05:52	06:43	07:33	17:17 (G.III_01)	07:29	08:08	
	16:26	17:23	5	18:13		16:55 (G.III_01)	20:06	20:56	21:27	21:13	20:21	19:11	18:02	17	17:34 (G.III_01)	16:07	15:52
20	08:01	07:10		06:08		16:48 (G.III_01)	05:57	05:03	04:42	05:06	05:53	06:44	07:35	17:17 (G.III_01)	07:30	08:08	
	16:28	17:25	9	18:15		16:57 (G.III_01)	20:08	20:57	21:27	21:12	20:19	19:08	18:00	15	17:32 (G.III_01)	16:06	15:52
21	08:00	07:08		06:06		16:47 (G.III_01)	05:55	05:02	04:42	05:07	05:55	06:46	07:37	17:17 (G.III_01)	07:32	08:09	
	16:29	17:26	12	18:16		16:59 (G.III_01)	20:10	20:59	21:27	21:11	20:17	19:06	17:58	12	17:29 (G.III_01)	16:05	15:53
22	07:58	07:06		06:03		16:46 (G.III_01)	05:53	05:00	04:42	05:08	05:57	06:47	07:39	17:19 (G.III_01)	07:34	08:10	
	16:31	17:28	15	18:18		17:01 (G.III_01)	20:11	21:00	21:27	21:10	20:15	19:04	17:56	8	17:27 (G.III_01)	16:04	15:53
23	07:57	07:04		06:01		16:45 (G.III_01)	05:51	04:55	04:42	05:10	05:58	06:49	07:40	17:22 (G.III_01)	07:35	08:10	
	16:33	17:30	18	18:20		17:03 (G.III_01)	20:13	21:01	21:28	21:08	20:12	19:01	17:54	3	17:25 (G.III_01)	16:03	15:54
24	07:56	07:02		05:59		16:45 (G.III_01)	05:49	04:58	04:43	05:11	06:00	06:51	07:42		07:37	08:10	
	16:35	17:32	19	18:22		17:04 (G.III_01)	20:15	21:03	21:28	21:07	20:10	18:59	17:52		16:02	15:54	
25	07:55	07:00		05:56		16:45 (G.III_01)	05:47	04:56	04:43	05:13	06:02	06:52	07:44		07:39	08:11	
	16:36	17:34	20	18:23		17:05 (G.III_01)	20:17	21:04	21:28	21:06	20:08	18:57	17:50		16:01	15:55	
26	07:53	06:58		05:54		16:44 (G.III_01)	05:45	04:55	04:44	05:14	06:03	06:54	07:46		07:40	08:11	
	16:38	17:36	20	18:25		17:04 (G.III_01)	20:18	21:06	21:28	21:04	20:06	18:54	17:48		16:00	15:55	
27	07:52	06:55		05:52		16:45 (G.III_01)	05:43	04:54	04:44	05:15	06:05	06:56	07:48		07:42	08:11	
	16:40	17:37	18	18:27		17:03 (G.III_01)	20:20	21:07	21:28	21:03	20:04	18:52	17:46		15:59	15:56	
28	07:51	06:53		05:49		16:45 (G.III_01)	05:41	04:53	04:44	05:17	06:06	06:57	07:49		07:43	08:12	
	16:42	17:39	18	18:29		17:03 (G.III_01)	20:22	21:08	21:28	21:01	20:01	18:50	17:44		15:58	15:57	
29	07:49			06:47			05:39	04:52	04:45	05:18	06:08	06:59	07:51		07:45	08:12	
	16:44			19:30			20:23	21:09	21:27	21:00	19:59	18:47	17:42		15:57	15:58	
30	07:48			06:45			05:37	04:51	04:46	05:20	06:10	07:01	07:53		07:46	08:12	
	16:45			19:32			20:25	21:11	21:27	20:58	19:57	18:45	17:40		15:56	15:59	
31	07:46			06:42				04:50		05:21	06:11		06:55			08:12	
	16:47			19:34				21:12		20:57	19:55		16:38			16:00	
Sonnenscheinstunden	258	277		367			416	486	500	503	454	381	331	191	266	243	
astr.max.mögl.Beschattung			154		35												

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 Layout GIII_33 Schattenrezeptor: IO 26 - Friedland, Günthersdorf 13
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	08:12 16:01 21	08:54 (G_III_08) 07:45 09:15 (G_III_08) 16:49 30	08:17 (G_III_06) 06:51 09:23 (G_III_05) 17:41 56	07:25 (G_III_02) 06:40 08:24 (G_III_03) 19:36 20:27 21:13	05:35 20:27 21:13	04:50 20:27 21:13
2	08:12 16:02 22	08:53 (G_III_08) 07:43 09:15 (G_III_08) 16:51 36	08:15 (G_III_06) 06:49 09:23 (G_III_05) 17:43 60	07:20 (G_III_02) 06:38 08:23 (G_III_03) 19:37 20:29 21:14	05:33 20:29 21:14	04:49 20:29 21:14
3	08:12 16:03 22	08:54 (G_III_08) 07:42 09:16 (G_III_08) 16:53 38	08:13 (G_III_06) 06:47 09:22 (G_III_05) 17:45 60	07:17 (G_III_02) 06:36 08:22 (G_III_03) 19:39 20:30 21:15	05:31 20:30 21:15	04:48 20:30 21:15
4	08:12 16:05 22	08:55 (G_III_08) 07:40 09:17 (G_III_08) 16:55 38	08:11 (G_III_06) 06:45 09:20 (G_III_05) 17:47 59	07:15 (G_III_02) 06:33 08:21 (G_III_03) 19:41 20:32 21:16	05:29 20:32 21:16	04:47 20:32 21:16
5	08:11 16:06 22	08:55 (G_III_08) 07:39 09:17 (G_III_08) 16:57 38	08:10 (G_III_06) 06:42 09:19 (G_III_05) 17:49 57	07:14 (G_III_02) 06:31 08:21 (G_III_03) 19:43 20:34 21:17	05:28 20:34 21:17	04:46 20:34 21:17
6	08:11 16:07 23	08:55 (G_III_08) 07:37 09:18 (G_III_08) 16:59 36	08:09 (G_III_06) 06:40 09:17 (G_III_05) 17:50 52	07:13 (G_III_02) 06:29 08:19 (G_III_03) 19:44 20:35 21:18	05:26 20:35 21:18	04:46 20:35 21:18
7	08:11 16:08 23	08:55 (G_III_08) 07:35 09:18 (G_III_08) 17:01 28	08:10 (G_III_06) 06:38 09:14 (G_III_05) 17:52 50	07:12 (G_III_02) 06:27 08:17 (G_III_03) 19:46 20:37 21:19	05:24 20:37 21:19	04:45 20:37 21:19
8	08:10 16:10 23	08:56 (G_III_08) 07:33 09:19 (G_III_08) 17:02 23	08:09 (G_III_06) 06:36 08:32 (G_III_06) 17:54 48	07:12 (G_III_02) 06:24 08:16 (G_III_03) 19:48 20:39 21:20	05:22 20:39 21:20	04:45 20:39 21:20
9	08:10 16:11 24	08:55 (G_III_05) 07:32 09:19 (G_III_08) 17:04 23	08:09 (G_III_06) 06:33 08:32 (G_III_06) 17:56 44	07:12 (G_III_02) 06:22 08:14 (G_III_03) 19:49 20:40 21:21	05:20 20:40 21:21	04:44 20:40 21:21
10	08:09 16:12 25	08:54 (G_III_05) 07:30 09:19 (G_III_08) 17:06 23	08:09 (G_III_06) 06:31 08:32 (G_III_06) 17:57 36	07:11 (G_III_02) 06:20 08:09 (G_III_03) 19:51 20:42 21:22	05:19 20:42 21:22	04:44 20:42 21:22
11	08:09 16:14 25	08:54 (G_III_05) 07:28 09:19 (G_III_08) 17:08 23	08:09 (G_III_06) 06:29 08:32 (G_III_06) 17:59 25	07:11 (G_III_02) 06:18 07:36 (G_III_02) 19:53 20:43 21:23	05:17 20:43 21:23	04:43 20:43 21:23
12	08:08 16:15 26	08:54 (G_III_05) 07:26 09:20 (G_III_08) 17:10 22	08:09 (G_III_06) 06:27 08:31 (G_III_06) 18:01 24	07:12 (G_III_02) 06:15 07:36 (G_III_02) 19:55 20:45 21:23	05:15 20:45 21:23	04:43 20:45 21:23
13	08:07 16:17 26	08:54 (G_III_05) 07:24 09:20 (G_III_08) 17:12 21	08:10 (G_III_06) 06:24 08:31 (G_III_06) 18:03 22	07:12 (G_III_02) 06:13 07:34 (G_III_02) 19:56 20:47 21:24	05:14 20:47 21:24	04:43 20:47 21:24
14	08:06 16:18 28	08:53 (G_III_05) 07:22 09:21 (G_III_08) 17:14 20	08:10 (G_III_06) 06:22 08:30 (G_III_06) 18:05 20	07:13 (G_III_02) 06:11 07:33 (G_III_02) 19:58 20:48 21:25	05:12 20:48 21:25	04:42 20:48 21:25
15	08:06 16:20 28	08:53 (G_III_05) 07:20 09:21 (G_III_08) 17:16 18	08:11 (G_III_06) 06:20 08:29 (G_III_06) 18:06 18	07:14 (G_III_02) 06:09 07:32 (G_III_02) 20:00 20:50 21:25	05:10 20:50 21:25	04:42 20:50 21:25
16	08:05 16:21 28	08:53 (G_III_05) 07:18 09:21 (G_III_08) 17:17 25	08:03 (G_III_03) 06:17 08:28 (G_III_06) 18:08 14	07:15 (G_III_02) 06:06 07:29 (G_III_02) 20:01 20:51 21:26	05:09 20:51 21:26	04:42 20:51 21:26
17	08:04 16:23 28	08:53 (G_III_05) 07:16 09:21 (G_III_08) 17:19 27	07:59 (G_III_03) 06:15 08:26 (G_III_06) 18:10 6	07:19 (G_III_02) 06:04 07:25 (G_III_02) 20:03 20:53 21:26	05:07 20:53 21:26	04:42 20:53 21:26
18	08:03 16:25 27	08:53 (G_III_05) 07:14 09:20 (G_III_05) 17:21 24	07:57 (G_III_03) 06:13 08:22 (G_III_06) 18:11 11	06:02 20:05 20:54 21:27	05:06 20:54 21:27	04:42 20:54 21:27
19	08:02 16:26 28	08:52 (G_III_05) 07:12 09:20 (G_III_05) 17:23 25	07:55 (G_III_03) 06:11 08:20 (G_III_03) 18:13 10	06:35 (G_III_01) 06:00 06:45 (G_III_01) 20:07 20:56 21:27	05:05 20:56 21:27	04:42 20:56 21:27
20	08:01 16:28 29	08:52 (G_III_05) 07:10 09:21 (G_III_05) 17:25 27	07:54 (G_III_03) 06:08 08:21 (G_III_03) 18:15 14	06:33 (G_III_01) 05:58 06:47 (G_III_01) 20:08 20:57 21:27	05:03 20:57 21:27	04:42 20:57 21:27
21	08:00 16:30 30	08:52 (G_III_05) 07:08 09:22 (G_III_05) 17:27 36	07:34 (G_III_04) 06:06 08:22 (G_III_03) 18:17 16	06:32 (G_III_01) 05:56 06:48 (G_III_01) 20:10 20:59 21:27	05:02 20:59 21:27	04:42 20:59 21:27
22	07:59 16:31 31	08:52 (G_III_05) 07:06 09:23 (G_III_05) 17:29 44	07:31 (G_III_04) 06:04 08:23 (G_III_03) 18:18 18	06:30 (G_III_01) 05:53 06:48 (G_III_01) 20:12 21:00 21:28	05:00 21:00 21:28	04:42 21:00 21:28
23	07:57 16:33 31	08:52 (G_III_05) 07:04 09:23 (G_III_05) 17:30 47	07:30 (G_III_04) 06:01 08:23 (G_III_03) 18:20 20	06:29 (G_III_01) 05:51 06:49 (G_III_01) 20:13 21:02 21:28	04:59 21:02 21:28	04:43 21:02 21:28
24	07:56 16:35 32	08:52 (G_III_05) 07:02 09:24 (G_III_05) 17:32 51	07:29 (G_III_04) 05:59 08:24 (G_III_03) 18:22 21	06:29 (G_III_01) 05:49 06:50 (G_III_01) 20:15 21:03 21:28	04:58 21:03 21:28	04:43 21:03 21:28
25	07:55 16:37 31	08:52 (G_III_05) 07:00 09:23 (G_III_05) 17:34 53	07:28 (G_III_04) 05:57 08:24 (G_III_03) 18:24 21	06:28 (G_III_01) 05:47 06:49 (G_III_01) 20:17 21:04 21:28	04:57 21:04 21:28	04:43 21:04 21:28
26	07:54 16:38 31	08:53 (G_III_05) 06:58 09:24 (G_III_05) 17:36 54	07:27 (G_III_04) 05:54 08:24 (G_III_03) 18:25 21	06:28 (G_III_01) 05:45 06:49 (G_III_01) 20:18 21:06 21:28	04:56 21:06 21:28	04:44 21:06 21:28
27	07:52 16:40 31	08:53 (G_III_05) 06:56 09:24 (G_III_05) 17:38 54	07:27 (G_III_04) 05:52 08:24 (G_III_03) 18:27 20	06:28 (G_III_01) 05:43 06:48 (G_III_01) 20:20 21:07 21:28	04:54 21:07 21:28	04:44 21:07 21:28
28	07:51 16:42 30	08:54 (G_III_05) 06:53 09:24 (G_III_05) 17:39 54	07:27 (G_III_04) 05:50 08:24 (G_III_03) 18:29 18	06:28 (G_III_01) 05:41 06:46 (G_III_01) 20:22 21:08 21:28	04:53 21:08 21:28	04:45 21:08 21:28
29	07:50 16:44 30	08:54 (G_III_05) 06:51 09:24 (G_III_05) 17:40 16	06:47 19:31 16	07:29 (G_III_01) 05:39 07:45 (G_III_01) 20:24 21:10 21:28	04:52 21:10 21:28	04:45 21:10 21:28
30	07:48 16:46 29	08:55 (G_III_05) 06:49 09:24 (G_III_05) 17:41 14	06:45 19:32 14	07:30 (G_III_01) 05:37 07:44 (G_III_01) 20:25 21:11 21:27	04:51 21:11 21:27	04:46 21:11 21:27
31	07:47 16:47 28	08:55 (G_III_05) 06:47 09:23 (G_III_05) 17:42 9	06:43 19:34 9	07:32 (G_III_01) 05:35 07:41 (G_III_01) 20:26 21:12 21:27	04:50 21:12 21:27	04:46 21:12 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	834	938	869			

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 26 - Friedland, Günthersdorf 13
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

	Jul	August	September		Oktober		November		Dezember		
1	04:46	05:23	06:13		07:03	07:51 (G.III_02)	06:57	07:39 (G.III_06)	07:48	08:36 (G.III_05)	
	21:27	20:55	19:53		18:43	23 08:14 (G.III_02)	16:36	22 08:01 (G.III_06)	15:56	25 09:01 (G.III_08)	
2	04:47	05:25	06:15		07:04	07:50 (G.III_02)	06:59	07:39 (G.III_06)	07:50	08:38 (G.III_05)	
	21:27	20:53	19:50		18:41	25 08:15 (G.III_02)	16:35	22 08:01 (G.III_06)	15:55	24 09:02 (G.III_08)	
3	04:48	05:26	06:17		07:06	07:49 (G.III_02)	07:00	07:39 (G.III_06)	07:51	08:38 (G.III_05)	
	21:26	20:52	19:48		18:38	32 08:45 (G.III_03)	16:33	22 08:01 (G.III_06)	15:54	24 09:02 (G.III_08)	
4	04:49	05:28	06:18		07:08	07:49 (G.III_02)	07:02	07:39 (G.III_06)	07:52	08:40 (G.III_08)	
	21:26	20:50	19:46		18:36	40 08:49 (G.III_03)	16:31	30 08:44 (G.III_05)	15:54	23 09:03 (G.III_08)	
5	04:49	05:29	06:20		07:09	07:49 (G.III_02)	07:04	07:40 (G.III_06)	07:54	08:40 (G.III_08)	
	21:26	20:48	19:44		18:34	46 08:52 (G.III_03)	16:29	35 08:48 (G.III_05)	15:53	23 09:03 (G.III_08)	
6	04:50	05:31	06:21		07:11	07:48 (G.III_02)	07:06	07:41 (G.III_06)	07:55	08:42 (G.III_08)	
	21:25	20:46	19:41		18:31	50 08:53 (G.III_03)	16:27	38 08:50 (G.III_05)	15:53	22 09:04 (G.III_08)	
7	04:51	05:33	06:23		07:13	07:48 (G.III_02)	07:08	07:41 (G.III_06)	07:56	08:42 (G.III_08)	
	21:24	20:45	19:39		18:29	52 08:54 (G.III_03)	16:26	38 08:50 (G.III_05)	15:52	22 09:04 (G.III_08)	
8	04:52	05:34	06:25		07:14	07:49 (G.III_02)	07:09	07:43 (G.III_06)	07:57	08:42 (G.III_08)	
	21:24	20:43	19:37		18:27	53 08:55 (G.III_03)	16:24	38 08:52 (G.III_05)	15:52	22 09:04 (G.III_08)	
9	04:53	05:36	06:26		07:16	07:50 (G.III_02)	07:11	07:45 (G.III_06)	07:59	08:43 (G.III_08)	
	21:23	20:41	19:34		18:25	57 08:56 (G.III_03)	16:22	36 08:53 (G.III_05)	15:52	22 09:05 (G.III_08)	
10	04:54	05:37	06:28		07:18	07:50 (G.III_02)	07:13	08:26 (G.III_05)	08:00	08:44 (G.III_08)	
	21:22	20:39	19:32		18:22	60 08:56 (G.III_03)	16:21	28 08:54 (G.III_05)	15:52	21 09:05 (G.III_08)	
11	04:55	05:39	06:30		07:20	07:52 (G.III_02)	07:15	08:26 (G.III_05)	08:01	08:44 (G.III_08)	
	21:22	20:37	19:30		18:20	59 08:56 (G.III_03)	16:19	28 08:54 (G.III_05)	15:51	21 09:05 (G.III_08)	
12	04:56	05:41	06:31	07:24 (G.III_01)	07:21	07:54 (G.III_02)	07:17	08:26 (G.III_05)	08:02	08:44 (G.III_08)	
	21:21	20:35	19:27	8 07:32 (G.III_01)	18:18	60 08:57 (G.III_03)	16:18	29 08:55 (G.III_05)	15:51	22 09:06 (G.III_08)	
13	04:57	05:42	06:33	07:21 (G.III_01)	07:23	08:00 (G.III_04)	07:18	08:26 (G.III_05)	08:03	08:45 (G.III_08)	
	21:20	20:33	19:25	13 07:34 (G.III_01)	18:16	54 08:57 (G.III_03)	16:16	30 08:56 (G.III_05)	15:51	21 09:06 (G.III_08)	
14	04:58	05:44	06:35	07:19 (G.III_01)	07:25	08:00 (G.III_04)	07:20	08:26 (G.III_05)	08:04	08:46 (G.III_08)	
	21:19	20:31	19:23	17 07:36 (G.III_01)	18:13	55 08:57 (G.III_03)	16:15	30 08:56 (G.III_05)	15:51	20 09:06 (G.III_08)	
15	05:00	05:45	06:36	07:18 (G.III_01)	07:26	07:59 (G.III_04)	07:22	08:26 (G.III_05)	08:05	08:46 (G.III_08)	
	21:18	20:29	19:20	19 07:37 (G.III_01)	18:11	54 08:56 (G.III_03)	16:13	31 08:57 (G.III_05)	15:51	21 09:07 (G.III_08)	
16	05:01	05:47	06:38	07:17 (G.III_01)	07:28	07:59 (G.III_04)	07:24	08:26 (G.III_05)	08:06	08:47 (G.III_08)	
	21:17	20:27	19:18	19 07:36 (G.III_01)	18:09	54 08:56 (G.III_03)	16:12	31 08:57 (G.III_05)	15:51	20 09:07 (G.III_08)	
17	05:02	05:49	06:39	07:16 (G.III_01)	07:30	07:59 (G.III_04)	07:25	08:26 (G.III_05)	08:06	08:47 (G.III_08)	
	21:16	20:25	19:16	21 07:37 (G.III_01)	18:07	53 08:55 (G.III_03)	16:10	31 08:57 (G.III_05)	15:52	20 09:07 (G.III_08)	
18	05:03	05:50	06:41	07:15 (G.III_01)	07:32	08:00 (G.III_04)	07:27	08:26 (G.III_05)	08:07	08:48 (G.III_08)	
	21:15	20:23	19:13	21 07:36 (G.III_01)	18:05	50 08:55 (G.III_03)	16:09	31 08:57 (G.III_05)	15:52	19 09:07 (G.III_08)	
19	05:05	05:52	06:43	07:15 (G.III_01)	07:33	08:01 (G.III_04)	07:29	08:27 (G.III_05)	08:08	08:48 (G.III_08)	
	21:14	20:21	19:11	21 07:36 (G.III_01)	18:03	47 08:54 (G.III_03)	16:08	31 08:58 (G.III_05)	15:52	20 09:08 (G.III_08)	
20	05:06	05:54	06:44	07:16 (G.III_01)	07:35	08:03 (G.III_04)	07:31	08:27 (G.III_05)	08:09	08:48 (G.III_08)	
	21:12	20:19	19:09	20 07:36 (G.III_01)	18:00	42 08:54 (G.III_03)	16:06	31 08:58 (G.III_05)	15:52	20 09:08 (G.III_08)	
21	05:07	05:55	06:46	07:15 (G.III_01)	07:37	08:07 (G.III_04)	07:32	08:27 (G.III_05)	08:09	08:49 (G.III_08)	
	21:11	20:17	19:06	19 07:34 (G.III_01)	17:58	32 08:53 (G.III_03)	16:05	30 08:57 (G.III_05)	15:53	20 09:09 (G.III_08)	
22	05:09	05:57	06:48	07:16 (G.III_01)	07:39	08:24 (G.III_03)	07:34	08:28 (G.III_05)	08:10	08:49 (G.III_08)	
	21:10	20:15	19:04	17 07:33 (G.III_01)	17:56	27 08:51 (G.III_03)	16:04	29 08:57 (G.III_05)	15:53	20 09:09 (G.III_08)	
23	05:10	05:59	06:49	07:17 (G.III_01)	07:41	08:25 (G.III_03)	07:36	08:29 (G.III_05)	08:10	08:50 (G.III_08)	
	21:09	20:13	19:02	15 07:32 (G.III_01)	17:54	24 08:49 (G.III_03)	16:03	28 08:57 (G.III_05)	15:54	20 09:10 (G.III_08)	
24	05:11	06:00	06:51	07:18 (G.III_01)	07:42	08:27 (G.III_03)	07:37	08:30 (G.III_05)	08:11	08:50 (G.III_08)	
	21:07	20:10	18:59	11 07:29 (G.III_01)	17:52	26 08:53 (G.III_06)	16:02	27 08:57 (G.III_05)	15:54	20 09:10 (G.III_08)	
25	05:13	06:02	06:53		06:44	07:29 (G.III_03)	07:39	08:31 (G.III_05)	08:11	08:51 (G.III_08)	
	21:06	20:08	18:57		16:50	27 07:56 (G.III_06)	16:01	28 08:59 (G.III_08)	15:55	20 09:11 (G.III_08)	
26	05:14	06:03	06:54		06:46	07:34 (G.III_03)	07:40	08:31 (G.III_05)	08:11	08:52 (G.III_08)	
	21:04	20:06	18:55		16:48	23 07:58 (G.III_06)	16:00	28 08:59 (G.III_08)	15:56	20 09:12 (G.III_08)	
27	05:16	06:05	06:56	07:58 (G.III_02)	06:48	07:41 (G.III_06)	07:42	08:32 (G.III_05)	08:12	08:52 (G.III_08)	
	21:03	20:04	18:52	11 08:09 (G.III_02)	16:46	18 07:59 (G.III_06)	15:59	28 09:00 (G.III_08)	15:56	20 09:12 (G.III_08)	
28	05:17	06:07	06:58	07:56 (G.III_02)	06:50	07:40 (G.III_06)	07:44	08:33 (G.III_05)	08:12	08:52 (G.III_08)	
	21:01	20:02	18:50	16 08:12 (G.III_02)	16:44	20 08:00 (G.III_06)	15:58	28 09:01 (G.III_08)	15:57	20 09:12 (G.III_08)	
29	05:19	06:08	06:59	07:53 (G.III_02)	06:51	07:39 (G.III_06)	07:45	08:34 (G.III_05)	08:12	08:52 (G.III_08)	
	21:00	19:59	18:48	19 08:12 (G.III_02)	16:42	22 08:01 (G.III_06)	15:57	27 09:01 (G.III_08)	15:58	21 09:13 (G.III_08)	
30	05:20	06:10	07:01	07:52 (G.III_02)	06:53	07:39 (G.III_06)	07:47	08:35 (G.III_05)	08:12	08:53 (G.III_08)	
	20:58	19:57	18:45	21 08:13 (G.III_02)	16:40	22 08:01 (G.III_06)	15:56	26 09:01 (G.III_08)	15:59	21 09:14 (G.III_08)	
31	05:22	06:12			06:55	07:39 (G.III_06)			08:12	08:53 (G.III_08)	
	20:57	19:55			16:38	22 08:01 (G.III_06)			16:00	21 09:14 (G.III_08)	
Sonnenscheinstunden	503	454	381		331	1229		266	891	243	655
astr. max. mögl. Beschattung				288							

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 Layout GIII_33 Schattenrezeptor: IO 27 - Friedland, Günthersdorf 12

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	08:12		08:55 (G_III_08)	07:45		08:15 (G_III_06)	06:51		07:21 (G_III_02)	06:40		05:35		04:50				
	16:01	21	09:16 (G_III_08)	16:49	36	09:22 (G_III_05)	17:41	58	08:26 (G_III_03)	19:36		20:27		21:13				
2	08:12		08:54 (G_III_08)	07:43		08:14 (G_III_06)	06:49		07:20 (G_III_02)	06:38		05:33		04:49				
	16:02	22	09:16 (G_III_08)	16:51	37	09:22 (G_III_05)	17:43	55	08:25 (G_III_03)	19:37		20:29		21:14				
3	08:12		08:55 (G_III_08)	07:42		08:13 (G_III_06)	06:47		07:18 (G_III_02)	06:36		05:31		04:48				
	16:03	22	09:17 (G_III_08)	16:53	35	09:20 (G_III_05)	17:45	52	08:23 (G_III_03)	19:39		20:30		21:15				
4	08:12		08:56 (G_III_08)	07:40		08:12 (G_III_06)	06:45		07:18 (G_III_02)	06:33		05:29		04:47				
	16:05	22	09:18 (G_III_08)	16:55	33	09:18 (G_III_05)	17:47	48	08:22 (G_III_03)	19:41		20:32		21:16				
5	08:11		08:56 (G_III_05)	07:39		08:12 (G_III_06)	06:42		07:17 (G_III_02)	06:31		05:28		04:46				
	16:06	22	09:18 (G_III_08)	16:57	24	09:13 (G_III_05)	17:49	46	08:20 (G_III_03)	19:43		20:34		21:17				
6	08:11		08:56 (G_III_05)	07:37		08:11 (G_III_06)	06:40		07:16 (G_III_02)	06:29		05:26		04:46				
	16:07	23	09:19 (G_III_08)	16:59	22	08:33 (G_III_06)	17:50	42	08:17 (G_III_03)	19:44		20:35		21:18				
7	08:11		08:55 (G_III_05)	07:35		08:12 (G_III_06)	06:38		07:16 (G_III_02)	06:27		05:24		04:45				
	16:08	24	09:19 (G_III_08)	17:01	22	08:34 (G_III_06)	17:52	34	08:13 (G_III_03)	19:46		20:37		21:19				
8	08:10		08:55 (G_III_05)	07:33		08:12 (G_III_06)	06:36		07:16 (G_III_02)	06:24		05:22		04:45				
	16:10	25	09:20 (G_III_08)	17:02	22	08:34 (G_III_06)	17:54	25	07:41 (G_III_02)	19:48		20:39		21:20				
9	08:10		08:55 (G_III_05)	07:32		08:12 (G_III_06)	06:33		07:17 (G_III_02)	06:22		05:20		04:44				
	16:11	25	09:20 (G_III_08)	17:04	22	08:34 (G_III_06)	17:56	24	07:41 (G_III_02)	19:49		20:40		21:21				
10	08:09		08:54 (G_III_05)	07:30		08:12 (G_III_06)	06:31		07:16 (G_III_02)	06:20		05:19		04:44				
	16:12	26	09:20 (G_III_08)	17:06	22	08:34 (G_III_06)	17:57	23	07:39 (G_III_02)	19:51		20:42		21:22				
11	08:09		08:54 (G_III_05)	07:28		08:12 (G_III_06)	06:29		07:17 (G_III_02)	06:18		05:17		04:43				
	16:14	26	09:20 (G_III_08)	17:08	21	08:33 (G_III_06)	17:59	21	07:38 (G_III_02)	19:53		20:43		21:23				
12	08:08		08:54 (G_III_05)	07:26		08:13 (G_III_06)	06:27		07:19 (G_III_02)	06:15		05:15		04:43				
	16:15	27	09:21 (G_III_08)	17:10	20	08:33 (G_III_06)	18:01	18	07:37 (G_III_02)	19:55		20:45		21:23				
13	08:07		08:54 (G_III_05)	07:24		08:08 (G_III_03)	06:24		07:19 (G_III_02)	06:13		05:14		04:43				
	16:17	27	09:21 (G_III_08)	17:12	24	08:32 (G_III_06)	18:03	15	07:34 (G_III_02)	19:56		20:47		21:24				
14	08:06		08:54 (G_III_05)	07:22		08:04 (G_III_03)	06:22		07:22 (G_III_02)	06:11		05:12		04:42				
	16:18	27	09:21 (G_III_08)	17:14	27	08:31 (G_III_06)	18:05	9	07:31 (G_III_02)	19:58		20:48		21:25				
15	08:06		08:54 (G_III_05)	07:20		08:02 (G_III_03)	06:20			06:09		05:10		04:42				
	16:20	27	09:21 (G_III_08)	17:16	27	08:29 (G_III_06)	18:06			20:00		20:50		21:25				
16	08:05		08:54 (G_III_05)	07:18		08:00 (G_III_03)	06:17			06:06		05:09		04:42				
	16:21	27	09:21 (G_III_08)	17:17	26	08:26 (G_III_06)	18:08			20:01		20:51		21:26				
17	08:04		08:54 (G_III_05)	07:16		07:59 (G_III_03)	06:15		06:40 (G_III_01)	06:04		05:07		04:42				
	16:23	28	09:22 (G_III_05)	17:19	26	08:25 (G_III_03)	18:10	10	06:50 (G_III_01)	20:03		20:53		21:26				
18	08:03		08:54 (G_III_05)	07:14		07:58 (G_III_03)	06:13		06:38 (G_III_01)	06:02		05:06		04:42				
	16:25	28	09:22 (G_III_05)	17:21	28	08:26 (G_III_03)	18:11	14	06:52 (G_III_01)	20:05		20:54		21:27				
19	08:02		08:53 (G_III_05)	07:12		07:39 (G_III_04)	06:11		06:36 (G_III_01)	06:00		05:05		04:42				
	16:26	29	09:22 (G_III_05)	17:23	34	08:27 (G_III_03)	18:13	17	06:53 (G_III_01)	20:07		20:56		21:27				
20	08:01		08:53 (G_III_05)	07:10		07:36 (G_III_04)	06:08		06:35 (G_III_01)	05:58		05:03		04:42				
	16:28	30	09:23 (G_III_05)	17:25	42	08:28 (G_III_03)	18:15	18	06:53 (G_III_01)	20:08		20:57		21:27				
21	08:00		08:54 (G_III_05)	07:08		07:33 (G_III_04)	06:06		06:34 (G_III_01)	05:56		05:02		04:42				
	16:30	30	09:24 (G_III_05)	17:27	46	08:27 (G_III_03)	18:17	20	06:54 (G_III_01)	20:10		20:59		21:27				
22	07:59		08:54 (G_III_05)	07:06		07:32 (G_III_04)	06:04		06:33 (G_III_01)	05:53		05:00		04:42				
	16:31	30	09:24 (G_III_05)	17:29	50	08:28 (G_III_03)	18:18	20	06:53 (G_III_01)	20:12		21:00		21:28				
23	07:57		08:54 (G_III_05)	07:04		07:31 (G_III_04)	06:01		06:33 (G_III_01)	05:51		04:59		04:43				
	16:33	30	09:24 (G_III_05)	17:30	52	08:28 (G_III_03)	18:20	20	06:53 (G_III_01)	20:13		21:02		21:28				
24	07:56		08:55 (G_III_05)	07:02		07:31 (G_III_04)	05:59		06:33 (G_III_01)	05:49		04:58		04:43				
	16:35	30	09:25 (G_III_05)	17:32	53	08:28 (G_III_03)	18:22	20	06:53 (G_III_01)	20:15		21:03		21:28				
25	07:55		08:54 (G_III_05)	07:00		07:31 (G_III_04)	05:57		06:33 (G_III_01)	05:47		04:57		04:43				
	16:37	30	09:24 (G_III_05)	17:34	53	08:28 (G_III_03)	18:24	19	06:52 (G_III_01)	20:17		21:04		21:28				
26	07:54		08:55 (G_III_05)	06:58		07:30 (G_III_04)	05:54		06:33 (G_III_01)	05:45		04:56		04:44				
	16:38	30	09:25 (G_III_05)	17:36	53	08:27 (G_III_03)	18:25	18	06:51 (G_III_01)	20:18		21:06		21:28				
27	07:52		08:55 (G_III_05)	06:56		07:26 (G_III_02)	05:52		06:34 (G_III_01)	05:43		04:54		04:44				
	16:40	29	09:24 (G_III_05)	17:38	56	08:27 (G_III_03)	18:27	16	06:50 (G_III_01)	20:20		21:07		21:28				
28	07:51		08:56 (G_III_05)	06:53		07:23 (G_III_02)	05:50		06:35 (G_III_01)	05:41		04:53		04:45				
	16:42	28	09:24 (G_III_05)	17:39	57	08:26 (G_III_03)	18:29	12	06:47 (G_III_01)	20:22		21:08		21:28				
29	07:50		08:57 (G_III_05)				06:47		07:38 (G_III_01)	05:39		04:52		04:45				
	16:44	27	09:24 (G_III_05)				19:31	6	07:44 (G_III_01)	20:24		21:10		21:28				
30	07:48		08:58 (G_III_05)				06:45			05:37		04:51		04:46				
	16:46	26	09:24 (G_III_05)				19:32			20:25		21:11		21:27				
31	07:47		08:17 (G_III_06)				06:43					04:50						
	16:47	33	09:23 (G_III_05)				19:34					21:12						
Sonnenscheinstunden	258			277			367			416		486		500				
astr.max.mögl.Beschattung	831			970			680											

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 Layout GIII_33 Schattenrezeptor: IO 27 - Friedland, Günthersdorf 12
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

	Juli	August	September	Oktober	November	Dezember	
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:58 (G.III_02) 16:36	07:41 (G.III_06) 15:56	07:48 09:02 (G.III_08)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	07:57 (G.III_02) 16:35	07:41 (G.III_06) 15:55	07:50 09:03 (G.III_08)
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:55 (G.III_02) 16:33	07:41 (G.III_06) 15:54	07:51 09:03 (G.III_08)
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:54 (G.III_02) 16:31	07:42 (G.III_06) 15:54	07:52 09:04 (G.III_08)
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	07:53 (G.III_02) 16:29	07:42 (G.III_06) 15:53	07:54 09:04 (G.III_08)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:52 (G.III_02) 16:27	07:42 (G.III_06) 15:53	07:55 09:05 (G.III_08)
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:52 (G.III_02) 16:26	07:43 (G.III_06) 15:52	07:56 09:05 (G.III_08)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	07:52 (G.III_02) 16:24	07:43 (G.III_06) 15:52	07:57 09:05 (G.III_08)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:52 (G.III_02) 16:22	07:44 (G.III_06) 15:52	07:59 09:06 (G.III_08)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:52 (G.III_02) 16:21	07:46 (G.III_06) 15:52	08:00 09:06 (G.III_08)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:53 (G.III_02) 16:19	07:48 (G.III_06) 15:51	08:01 09:06 (G.III_08)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:54 (G.III_02) 16:18	07:49 (G.III_06) 15:51	08:02 09:07 (G.III_08)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:55 (G.III_02) 16:16	07:49 (G.III_06) 15:51	08:03 09:07 (G.III_08)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	07:57 (G.III_02) 16:15	07:50 (G.III_06) 15:51	08:04 09:07 (G.III_08)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	08:02 (G.III_04) 16:13	08:05 (G.III_05) 15:51	08:05 09:08 (G.III_08)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	08:02 (G.III_04) 16:12	08:06 (G.III_05) 15:51	08:06 09:08 (G.III_08)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	08:02 (G.III_04) 16:10	08:06 (G.III_05) 15:52	08:06 09:08 (G.III_08)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	08:02 (G.III_04) 16:09	08:07 (G.III_05) 15:52	08:07 09:09 (G.III_08)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	08:03 (G.III_04) 16:08	08:08 (G.III_05) 15:52	08:08 09:09 (G.III_08)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	08:03 (G.III_04) 16:06	08:09 (G.III_05) 15:52	08:09 09:09 (G.III_08)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	08:05 (G.III_04) 16:05	08:09 (G.III_05) 15:53	08:09 09:10 (G.III_08)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	08:06 (G.III_04) 16:04	08:10 (G.III_05) 15:53	08:10 09:10 (G.III_08)
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	08:27 (G.III_03) 16:03	08:30 (G.III_05) 15:54	08:11 09:11 (G.III_08)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	08:27 (G.III_03) 16:02	08:31 (G.III_05) 15:54	08:11 09:11 (G.III_08)
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 16:50	08:29 (G.III_03) 16:01	08:32 (G.III_05) 15:55	08:11 09:13 (G.III_08)
26	05:14 21:04	06:03 20:06	06:54 18:55	07:46 16:48	07:30 (G.III_03) 16:00	08:32 (G.III_05) 15:56	08:11 09:13 (G.III_08)
27	05:16 21:03	06:05 20:04	06:56 18:52	07:48 16:46	07:32 (G.III_03) 15:59	08:33 (G.III_05) 15:56	08:12 09:13 (G.III_08)
28	05:17 21:01	06:07 20:02	06:58 18:50	07:50 16:44	07:34 (G.III_03) 15:58	08:34 (G.III_05) 15:57	08:12 09:14 (G.III_08)
29	05:19 21:00	06:08 19:59	06:59 18:48	08:04 (G.III_02) 16:42	07:39 (G.III_03) 15:57	08:34 (G.III_05) 15:58	08:12 09:14 (G.III_08)
30	05:20 20:58	06:10 19:57	07:01 18:45	08:00 (G.III_02) 16:40	07:42 (G.III_06) 15:56	08:35 (G.III_05) 15:59	08:12 09:15 (G.III_08)
31	05:22 20:57	06:12 19:55		08:13 (G.III_02) 16:38	08:02 (G.III_06) 15:56	09:02 (G.III_08) 16:00	08:12 09:15 (G.III_08)
Sonnenscheinstunden	503	454	381	331	266	243	670
astr. max. mögl. Beschattung			234	1151	856		

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 Layout GIII_33 Schattenrezeptor: IO 28 - Friedland, Günthersdorf 11

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	08:12 16:01 23	08:58 (G_III_05) 07:45 09:21 (G_III_08) 16:49 30	08:17 (G_III_06) 06:51 09:22 (G_III_05) 17:41 45	07:24 (G_III_02) 06:40 08:28 (G_III_03) 19:36 20:27 21:13	05:35 20:27 21:13	04:50 20:27 21:13
2	08:12 16:02 23	08:57 (G_III_05) 07:43 09:20 (G_III_08) 16:51 20	08:17 (G_III_06) 06:49 08:37 (G_III_06) 17:43 41	07:24 (G_III_02) 06:38 08:26 (G_III_03) 19:37 20:29 21:14	05:33 20:29 21:14	04:49 20:29 21:14
3	08:12 16:03 24	08:57 (G_III_05) 07:42 09:21 (G_III_08) 16:53 22	08:16 (G_III_06) 06:47 08:38 (G_III_06) 17:45 34	07:23 (G_III_02) 06:36 08:22 (G_III_03) 19:39 20:30 21:15	05:31 20:30 21:15	04:48 20:30 21:15
4	08:12 16:05 24	08:58 (G_III_05) 07:40 09:22 (G_III_08) 16:55 22	08:16 (G_III_06) 06:45 08:38 (G_III_06) 17:47 25	07:23 (G_III_02) 06:33 07:48 (G_III_02) 19:41 20:32 21:16	05:29 20:32 21:16	04:47 20:32 21:16
5	08:11 16:06 25	08:57 (G_III_05) 07:39 09:22 (G_III_08) 16:57 22	08:16 (G_III_06) 06:42 08:38 (G_III_06) 17:49 25	07:23 (G_III_02) 06:31 07:48 (G_III_02) 19:43 20:34 21:17	05:28 20:34 21:17	04:46 20:34 21:17
6	08:11 16:07 24	08:58 (G_III_05) 07:37 09:22 (G_III_08) 16:59 22	08:16 (G_III_06) 06:40 08:38 (G_III_06) 17:50 24	07:22 (G_III_02) 06:29 07:46 (G_III_02) 19:44 20:35 21:18	05:26 20:35 21:18	04:46 20:35 21:18
7	08:11 16:08 25	08:57 (G_III_05) 07:35 09:22 (G_III_08) 17:01 22	08:17 (G_III_06) 06:38 08:39 (G_III_06) 17:52 23	07:23 (G_III_02) 06:27 07:46 (G_III_02) 19:46 20:37 21:19	05:24 20:37 21:19	04:45 20:37 21:19
8	08:10 16:10 25	08:58 (G_III_05) 07:33 09:23 (G_III_08) 17:02 21	08:17 (G_III_06) 06:36 08:38 (G_III_06) 17:54 21	07:24 (G_III_02) 06:24 07:45 (G_III_02) 19:48 20:39 21:20	05:22 20:39 21:20	04:45 20:39 21:20
9	08:10 16:11 26	08:57 (G_III_05) 07:32 09:23 (G_III_08) 17:04 23	08:15 (G_III_03) 06:33 08:38 (G_III_06) 17:56 19	07:25 (G_III_02) 06:22 07:44 (G_III_02) 19:49 20:40 21:21	05:20 20:40 21:21	04:44 20:40 21:21
10	08:09 16:12 26	08:57 (G_III_05) 07:30 09:23 (G_III_08) 17:06 25	08:12 (G_III_03) 06:31 08:37 (G_III_06) 17:57 15	07:26 (G_III_02) 06:20 07:41 (G_III_02) 19:51 20:42 21:22	05:19 20:42 21:22	04:44 20:42 21:22
11	08:09 16:14 27	08:57 (G_III_05) 07:28 09:24 (G_III_08) 17:08 27	08:09 (G_III_03) 06:29 08:36 (G_III_06) 17:59 10	07:29 (G_III_02) 06:17 07:39 (G_III_02) 19:53 20:43 21:23	05:17 20:43 21:23	04:43 20:43 21:23
12	08:08 16:15 27	08:58 (G_III_05) 07:26 09:25 (G_III_08) 17:10 26	08:08 (G_III_03) 06:27 08:34 (G_III_06) 18:01 26	06:15 19:55 20:45 21:23	05:15 20:45 21:23	04:43 20:45 21:23
13	08:07 16:17 28	08:58 (G_III_05) 07:24 09:26 (G_III_08) 17:12 25	08:07 (G_III_03) 06:24 08:32 (G_III_03) 18:03 25	06:13 19:56 20:47 21:24	05:14 20:47 21:24	04:43 20:47 21:24
14	08:06 16:18 28	08:58 (G_III_05) 07:22 09:26 (G_III_08) 17:14 28	08:05 (G_III_03) 06:22 08:33 (G_III_03) 18:05 6	06:11 19:58 20:48 21:25	05:12 20:48 21:25	04:42 20:48 21:25
15	08:06 16:20 29	08:58 (G_III_05) 07:20 09:27 (G_III_08) 17:16 29	08:05 (G_III_03) 06:20 08:34 (G_III_03) 18:06 12	06:09 20:00 20:50 21:25	05:10 20:50 21:25	04:42 20:50 21:25
16	08:05 16:21 29	08:58 (G_III_05) 07:18 09:27 (G_III_08) 17:17 31	08:04 (G_III_03) 06:17 08:35 (G_III_03) 18:08 16	06:06 20:01 20:51 21:26	05:09 20:51 21:26	04:42 20:51 21:26
17	08:04 16:23 29	08:59 (G_III_05) 07:16 09:28 (G_III_08) 17:19 39	07:42 (G_III_04) 06:15 08:35 (G_III_03) 18:10 18	06:04 20:03 20:53 21:26	05:07 20:53 21:26	04:42 20:53 21:26
18	08:03 16:25 29	08:59 (G_III_05) 07:14 09:28 (G_III_08) 17:21 45	07:39 (G_III_04) 06:13 08:36 (G_III_03) 18:11 20	06:02 20:05 20:54 21:27	05:06 20:54 21:27	04:42 20:54 21:27
19	08:02 16:26 29	08:59 (G_III_05) 07:12 09:28 (G_III_08) 17:23 48	07:38 (G_III_04) 06:11 08:36 (G_III_03) 18:13 20	06:00 20:07 20:56 21:27	05:05 20:56 21:27	04:42 20:56 21:27
20	08:01 16:28 30	08:59 (G_III_05) 07:10 09:29 (G_III_08) 17:25 50	07:37 (G_III_04) 06:08 08:36 (G_III_03) 18:15 20	05:58 20:08 20:57 21:27	05:03 20:57 21:27	04:42 20:57 21:27
21	08:00 16:30 29	09:00 (G_III_05) 07:08 09:29 (G_III_08) 17:27 52	07:35 (G_III_04) 06:06 08:35 (G_III_03) 18:17 20	05:56 20:10 20:59 21:27	05:02 20:59 21:27	04:42 20:59 21:27
22	07:59 16:31 29	09:00 (G_III_05) 07:06 09:29 (G_III_08) 17:29 52	07:35 (G_III_04) 06:04 08:35 (G_III_03) 18:18 20	05:53 20:12 21:00 21:28	05:00 21:00 21:28	04:42 21:00 21:28
23	07:57 16:33 29	09:00 (G_III_05) 07:04 09:29 (G_III_08) 17:30 52	07:35 (G_III_04) 06:01 08:35 (G_III_03) 18:20 18	05:51 20:13 21:02 21:28	04:59 21:02 21:28	04:43 21:02 21:28
24	07:56 16:35 28	09:01 (G_III_05) 07:02 09:29 (G_III_08) 17:32 53	07:33 (G_III_02) 05:59 08:35 (G_III_03) 18:22 17	05:49 20:15 21:03 21:28	04:58 21:03 21:28	04:43 21:03 21:28
25	07:55 16:37 27	09:01 (G_III_05) 07:00 09:28 (G_III_08) 17:34 55	07:30 (G_III_02) 05:57 08:34 (G_III_03) 18:24 14	05:47 20:17 21:04 21:28	04:57 21:04 21:28	04:43 21:04 21:28
26	07:54 16:38 26	09:03 (G_III_05) 06:58 09:29 (G_III_08) 17:36 55	07:27 (G_III_02) 05:54 08:32 (G_III_03) 18:25 10	05:45 20:18 21:06 21:28	04:56 21:06 21:28	04:44 21:06 21:28
27	07:52 16:40 25	09:03 (G_III_05) 06:56 09:28 (G_III_08) 17:38 53	07:26 (G_III_02) 05:52 08:31 (G_III_03) 18:27 50	05:43 20:20 21:07 21:28	04:54 21:07 21:28	04:44 21:07 21:28
28	07:51 16:42 32	08:22 (G_III_06) 06:53 09:28 (G_III_08) 17:39 50	07:25 (G_III_02) 05:50 08:30 (G_III_03) 18:29 49	05:41 20:22 21:08 21:28	04:53 21:08 21:28	04:45 21:08 21:28
29	07:50 16:44 35	08:19 (G_III_06) 06:47 09:27 (G_III_08) 17:39 35	06:47 19:31 20:24 21:10	05:39 20:24 21:10 21:28	04:52 21:10 21:28	04:45 21:10 21:28
30	07:48 16:46 34	08:19 (G_III_06) 06:45 09:26 (G_III_08) 17:39 34	06:45 19:32 20:25 21:11	05:37 20:25 21:11 21:27	04:51 21:11 21:27	04:46 21:11 21:27
31	07:47 16:47 32	08:18 (G_III_06) 06:43 09:24 (G_III_08) 17:39 32	06:43 19:34 20:27 21:12	05:36 20:27 21:12 21:27	04:50 21:12 21:27	04:46 21:12 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	856	999	493			

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 28 - Friedland, Günthersdorf 11
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

	July	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	06:57 16:36	07:42 (G_III_03) 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	06:59 16:35	07:46 (G_III_03) 15:55
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:00 16:33	07:47 (G_III_06) 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:47 (G_III_06) 15:54
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	07:04 16:29	07:46 (G_III_06) 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:06 16:27	07:47 (G_III_06) 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:08 16:26	07:47 (G_III_06) 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	07:09 16:24	07:46 (G_III_06) 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:11 16:22	07:47 (G_III_06) 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:13 16:21	07:48 (G_III_06) 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:15 16:19	07:49 (G_III_06) 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:17 16:18	07:50 (G_III_06) 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:18 16:16	07:51 (G_III_06) 15:51
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	07:20 16:15	07:54 (G_III_06) 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	07:22 16:13	07:55 (G_III_05) 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:24 16:12	08:00 (G_III_05) 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	07:25 16:10	08:02 (G_III_05) 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 (G_III_01) 07:41 (G_III_01)	07:27 16:09	08:04 (G_III_05) 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 (G_III_01) 07:43 (G_III_01)	07:29 16:08	08:06 (G_III_05) 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 (G_III_01) 07:44 (G_III_01)	07:31 16:06	08:08 (G_III_05) 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 (G_III_01) 07:43 (G_III_01)	07:32 16:05	08:09 (G_III_05) 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 (G_III_01) 07:44 (G_III_01)	07:34 16:04	08:10 (G_III_05) 15:53
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 (G_III_01) 07:44 (G_III_01)	07:36 16:03	08:11 (G_III_05) 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 (G_III_01) 07:43 (G_III_01)	07:37 16:02	08:11 (G_III_05) 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 (G_III_01) 07:43 (G_III_01)	07:39 16:01	08:11 (G_III_05) 15:55
26	05:14 21:04	06:03 20:06	06:54 18:55	07:45 (G_III_01) 07:41 (G_III_01)	07:40 16:00	08:11 (G_III_05) 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	07:46 (G_III_01) 07:40 (G_III_01)	07:42 15:59	08:12 (G_III_05) 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	07:47 (G_III_01) 07:39 (G_III_01)	07:44 15:58	08:12 (G_III_05) 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	07:48 (G_III_01) 07:35 (G_III_01)	07:45 15:57	08:12 (G_III_05) 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	07:49 (G_III_01) 16:40	07:47 15:56	08:12 (G_III_05) 15:59
31	05:22 20:57	06:12 19:55		06:55 16:38	07:39 (G_III_03) 08:06 (G_III_06)	08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
astr. max. mögl. Beschattung			214	1065	812	703

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 Layout GIII_33 Schattenrezeptor: IO 29 - Friedland, Günthersdorf 10

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	08:12 16:01 24	09:00 (G_III_05) 07:45 09:24 (G_III_05) 16:49 21	08:20 (G_III_06) 06:51 08:41 (G_III_06) 17:41 25	07:29 (G_III_02) 06:40 07:54 (G_III_02) 19:36 20:27	05:35 20:27 21:13	04:50 21:13
2	08:12 16:02 24	09:00 (G_III_05) 07:43 09:24 (G_III_05) 16:51 21	08:21 (G_III_06) 06:49 08:42 (G_III_06) 17:43 25	07:29 (G_III_02) 06:38 07:54 (G_III_02) 19:37 20:29	05:33 20:29 21:14	04:49 21:14
3	08:12 16:03 25	09:00 (G_III_05) 07:42 09:25 (G_III_05) 16:53 21	08:21 (G_III_06) 06:47 08:42 (G_III_06) 17:45 24	07:28 (G_III_02) 06:36 07:52 (G_III_02) 19:39 20:30	05:31 20:30 21:15	04:48 21:15
4	08:12 16:05 25	09:01 (G_III_05) 07:40 09:26 (G_III_05) 16:55 22	08:20 (G_III_06) 06:45 08:42 (G_III_06) 17:47 23	07:29 (G_III_02) 06:33 07:52 (G_III_02) 19:41 20:32	05:29 20:32 21:16	04:47 21:16
5	08:11 16:06 26	09:00 (G_III_05) 07:39 09:26 (G_III_05) 16:57 21	08:21 (G_III_06) 06:42 08:42 (G_III_06) 17:49 21	07:30 (G_III_02) 06:31 07:51 (G_III_02) 19:43 20:34	05:28 20:34 21:17	04:46 21:17
6	08:11 16:07 26	09:01 (G_III_05) 07:37 09:27 (G_III_05) 16:59 23	08:19 (G_III_03) 06:40 08:42 (G_III_06) 17:50 19	07:30 (G_III_02) 06:29 07:49 (G_III_02) 19:44 20:35	05:26 20:35 21:18	04:46 21:18
7	08:11 16:08 27	09:01 (G_III_05) 07:35 09:28 (G_III_05) 17:01 25	08:17 (G_III_03) 06:38 08:42 (G_III_06) 17:52 17	07:31 (G_III_02) 06:27 07:48 (G_III_02) 19:46 20:37	05:24 20:37 21:19	04:45 21:19
8	08:10 16:10 27	09:02 (G_III_05) 07:33 09:29 (G_III_05) 17:02 26	08:15 (G_III_03) 06:36 08:41 (G_III_06) 17:54 13	07:33 (G_III_02) 06:24 07:46 (G_III_02) 19:48 20:39	05:22 20:39 21:20	04:45 21:20
9	08:10 16:11 28	09:01 (G_III_05) 07:32 09:29 (G_III_05) 17:04 26	08:14 (G_III_03) 06:33 08:40 (G_III_06) 17:56 5	07:37 (G_III_02) 06:22 07:42 (G_III_02) 19:49 20:40	05:20 20:40 21:21	04:44 21:21
10	08:09 16:12 28	09:01 (G_III_05) 07:30 09:29 (G_III_05) 17:06 26	08:13 (G_III_03) 06:31 08:39 (G_III_03) 17:57 26	06:20 19:51 20:42	05:19 20:42 21:22	04:44 21:22
11	08:09 16:14 29	09:01 (G_III_05) 07:28 09:30 (G_III_05) 17:08 28	08:12 (G_III_03) 06:29 08:40 (G_III_03) 17:59 28	06:17 19:53 20:43	05:17 20:43 21:23	04:43 21:23
12	08:08 16:15 29	09:02 (G_III_05) 07:26 09:31 (G_III_05) 17:10 30	08:11 (G_III_03) 06:27 08:41 (G_III_03) 18:01 8	06:52 (G_III_01) 06:15 07:00 (G_III_01) 19:55 20:45	05:15 20:45 21:23	04:43 21:23
13	08:07 16:17 28	09:03 (G_III_05) 07:24 09:31 (G_III_05) 17:12 31	08:11 (G_III_03) 06:24 08:42 (G_III_03) 18:03 13	06:49 (G_III_01) 06:13 07:02 (G_III_01) 19:56 20:47	05:14 20:47 21:24	04:43 21:24
14	08:06 16:18 29	09:03 (G_III_05) 07:22 09:32 (G_III_05) 17:14 32	08:10 (G_III_03) 06:22 08:42 (G_III_03) 18:05 16	06:47 (G_III_01) 06:11 07:03 (G_III_01) 19:58 20:48	05:12 20:48 21:25	04:42 21:25
15	08:06 16:20 29	09:03 (G_III_05) 07:20 09:32 (G_III_05) 17:16 39	07:46 (G_III_04) 06:20 08:42 (G_III_03) 18:06 18	06:46 (G_III_01) 06:09 07:04 (G_III_01) 20:00 20:50	05:10 20:50 21:25	04:42 21:25
16	08:05 16:21 29	09:04 (G_III_05) 07:18 09:33 (G_III_05) 17:17 46	07:43 (G_III_04) 06:17 08:43 (G_III_03) 18:08 19	06:45 (G_III_01) 06:06 07:04 (G_III_01) 20:01 20:51	05:09 20:51 21:26	04:42 21:26
17	08:04 16:23 29	09:04 (G_III_05) 07:16 09:33 (G_III_05) 17:19 48	07:42 (G_III_04) 06:15 08:43 (G_III_03) 18:10 21	06:44 (G_III_01) 06:04 07:05 (G_III_01) 20:03 20:53	05:07 20:53 21:26	04:42 21:26
18	08:03 16:25 28	09:05 (G_III_05) 07:14 09:33 (G_III_05) 17:21 50	07:41 (G_III_04) 06:13 08:43 (G_III_03) 18:11 21	06:44 (G_III_01) 06:02 07:05 (G_III_01) 20:05 20:54	05:06 20:54 21:27	04:42 21:27
19	08:02 16:26 29	09:04 (G_III_05) 07:12 09:33 (G_III_05) 17:23 52	07:40 (G_III_04) 06:11 08:43 (G_III_03) 18:13 21	06:43 (G_III_01) 06:00 07:04 (G_III_01) 20:07 20:56	05:05 20:56 21:27	04:42 21:27
20	08:01 16:28 28	09:05 (G_III_05) 07:10 09:33 (G_III_05) 17:25 51	07:40 (G_III_04) 06:08 08:42 (G_III_03) 18:15 19	06:44 (G_III_01) 05:58 07:03 (G_III_01) 20:08 20:57	05:03 20:57 21:27	04:42 21:27
21	08:00 16:30 27	09:06 (G_III_05) 07:08 09:33 (G_III_05) 17:27 50	07:39 (G_III_04) 06:06 08:41 (G_III_03) 18:17 19	06:44 (G_III_01) 05:56 07:03 (G_III_01) 20:10 20:59	05:02 20:59 21:27	04:42 21:27
22	07:59 16:31 26	09:07 (G_III_05) 07:06 09:33 (G_III_05) 17:28 52	07:36 (G_III_02) 06:04 08:40 (G_III_03) 18:18 17	06:44 (G_III_01) 05:53 07:01 (G_III_01) 20:12 21:00	05:00 21:00 21:28	04:42 21:28
23	07:57 16:33 25	09:07 (G_III_05) 07:04 09:32 (G_III_05) 17:30 52	07:34 (G_III_02) 06:01 08:39 (G_III_03) 18:20 13	06:46 (G_III_01) 05:51 06:59 (G_III_01) 20:13 21:02	04:59 21:02 21:28	04:43 21:28
24	07:56 16:35 25	09:08 (G_III_05) 07:02 09:33 (G_III_05) 17:32 50	07:33 (G_III_02) 05:59 08:38 (G_III_03) 18:22 9	06:48 (G_III_01) 05:49 06:57 (G_III_01) 20:15 21:03	04:58 21:03 21:28	04:43 21:28
25	07:55 16:37 29	08:26 (G_III_06) 07:00 09:31 (G_III_05) 17:34 48	07:32 (G_III_02) 05:57 08:37 (G_III_03) 18:24 48	05:47 20:17 21:04	04:57 21:04 21:28	04:43 21:28
26	07:54 16:38 33	08:24 (G_III_06) 06:58 09:31 (G_III_05) 17:36 44	07:31 (G_III_02) 05:54 08:35 (G_III_03) 18:25 44	05:45 20:18 21:06	04:56 21:06 21:28	04:44 21:28
27	07:52 16:40 34	08:22 (G_III_06) 06:56 09:30 (G_III_05) 17:38 39	07:29 (G_III_02) 05:52 08:32 (G_III_03) 18:27 39	05:43 20:20 21:07	04:54 21:07 21:28	04:44 21:28
28	07:51 16:42 32	08:22 (G_III_06) 06:53 09:29 (G_III_05) 17:39 31	07:29 (G_III_02) 05:50 08:28 (G_III_03) 18:29 31	05:41 20:22 21:08	04:53 21:08 21:28	04:45 21:28
29	07:50 16:44 28	08:21 (G_III_06) 06:47 09:26 (G_III_05) 17:39 28	06:47 19:31 20:24	05:39 20:24 21:10	04:52 21:10 21:28	04:45 21:28
30	07:48 16:46 20	08:21 (G_III_06) 06:45 08:41 (G_III_06) 17:39 20	06:45 19:32 20:25	05:37 20:25 21:11	04:51 21:11 21:27	04:46 21:27
31	07:47 16:47 20	08:21 (G_III_06) 06:43 08:41 (G_III_06) 17:39 20	06:43 19:34 20:26	04:50 21:12 21:27	04:50 21:27	04:46 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	846	1005	386			

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 Layout GIII_33 Schattenrezeptor: IO 29 - Friedland, Günthersdorf 10
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

	July	August	September	Oktober	November	Dezember			
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:30 (G_III_01) 07:40 (G_III_01)	06:57 16:36	07:43 (G_III_03) 08:09 (G_III_03)	07:48 15:56	08:43 (G_III_05) 09:12 (G_III_05)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	06:59 16:35	07:44 (G_III_03) 08:10 (G_III_06)	07:50 15:55	08:44 (G_III_05) 09:13 (G_III_05)	08:45 (G_III_05) 09:12 (G_III_05)
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	06:59 16:33	07:45 (G_III_03) 08:11 (G_III_06)	07:51 15:54	08:45 (G_III_05) 09:12 (G_III_05)	08:46 (G_III_05) 09:13 (G_III_05)
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:47 (G_III_03) 08:12 (G_III_06)	07:52 15:54	08:46 (G_III_05) 09:13 (G_III_05)	08:46 (G_III_05) 09:13 (G_III_05)
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	08:12 (G_III_02) 08:22 (G_III_02)	07:04 16:29	07:50 (G_III_03) 08:12 (G_III_06)	07:54 15:53	08:46 (G_III_05) 09:13 (G_III_05)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	08:08 (G_III_02) 08:23 (G_III_02)	07:06 16:27	07:51 (G_III_06) 08:13 (G_III_06)	07:55 15:53	08:47 (G_III_05) 09:13 (G_III_05)
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	08:06 (G_III_02) 08:25 (G_III_02)	07:08 16:26	07:51 (G_III_06) 08:13 (G_III_06)	07:56 15:52	08:47 (G_III_05) 09:13 (G_III_05)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	08:05 (G_III_02) 08:26 (G_III_02)	07:09 16:24	07:50 (G_III_06) 08:12 (G_III_06)	07:57 15:52	08:48 (G_III_05) 09:13 (G_III_05)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	08:04 (G_III_02) 08:27 (G_III_02)	07:11 16:22	07:51 (G_III_06) 08:12 (G_III_06)	07:59 15:52	08:49 (G_III_05) 09:14 (G_III_05)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	08:03 (G_III_02) 08:26 (G_III_02)	07:13 16:21	07:51 (G_III_06) 08:12 (G_III_06)	08:00 15:52	08:50 (G_III_05) 09:14 (G_III_05)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	08:02 (G_III_02) 08:27 (G_III_02)	07:15 16:19	07:51 (G_III_06) 08:12 (G_III_06)	08:01 15:51	08:50 (G_III_05) 09:14 (G_III_05)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	08:02 (G_III_02) 08:27 (G_III_02)	07:17 16:18	07:52 (G_III_06) 08:12 (G_III_06)	08:02 15:51	08:51 (G_III_05) 09:15 (G_III_08)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	08:02 (G_III_02) 08:27 (G_III_02)	07:18 16:16	07:53 (G_III_06) 08:59 (G_III_05)	08:03 15:51	08:52 (G_III_05) 09:15 (G_III_08)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	08:02 (G_III_02) 09:03 (G_III_03)	07:20 16:15	07:54 (G_III_06) 09:01 (G_III_05)	08:04 15:51	08:52 (G_III_05) 09:16 (G_III_08)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	08:02 (G_III_02) 09:05 (G_III_03)	07:22 16:13	07:55 (G_III_06) 09:03 (G_III_05)	08:05 15:51	08:53 (G_III_05) 09:16 (G_III_08)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	08:02 (G_III_02) 09:07 (G_III_03)	07:24 16:12	07:57 (G_III_06) 09:04 (G_III_05)	08:06 15:51	08:54 (G_III_05) 09:17 (G_III_08)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	08:03 (G_III_02) 09:09 (G_III_03)	07:25 16:10	08:00 (G_III_06) 09:05 (G_III_05)	08:06 15:52	08:54 (G_III_05) 09:17 (G_III_08)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	08:04 (G_III_02) 09:10 (G_III_03)	07:27 16:09	08:42 (G_III_05) 09:07 (G_III_05)	08:07 15:52	08:55 (G_III_05) 09:17 (G_III_08)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	08:06 (G_III_02) 09:11 (G_III_03)	07:29 16:08	08:42 (G_III_05) 09:07 (G_III_05)	08:08 15:52	08:55 (G_III_05) 09:18 (G_III_08)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:33 (G_III_01) 07:45 (G_III_01)	08:09 (G_III_02) 09:12 (G_III_03)	07:31 16:06	08:42 (G_III_05) 09:08 (G_III_05)	08:09 15:52	08:55 (G_III_05) 09:18 (G_III_08)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:30 (G_III_01) 07:46 (G_III_01)	08:10 (G_III_04) 09:12 (G_III_03)	07:32 16:05	08:41 (G_III_05) 09:08 (G_III_05)	08:09 15:53	08:56 (G_III_05) 09:19 (G_III_08)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:29 (G_III_01) 07:47 (G_III_01)	08:10 (G_III_04) 09:12 (G_III_03)	07:34 16:04	08:41 (G_III_05) 09:09 (G_III_05)	08:10 15:53	08:57 (G_III_05) 09:20 (G_III_08)
23	05:10 21:09	05:59 20:13	06:49 19:02	07:29 (G_III_01) 07:48 (G_III_01)	08:10 (G_III_04) 09:12 (G_III_03)	07:36 16:03	08:41 (G_III_05) 09:10 (G_III_05)	08:10 15:54	08:57 (G_III_05) 09:20 (G_III_08)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:27 (G_III_01) 07:47 (G_III_01)	08:11 (G_III_04) 09:12 (G_III_03)	07:37 16:02	08:42 (G_III_05) 09:10 (G_III_05)	08:11 15:54	08:57 (G_III_05) 09:20 (G_III_08)
25	05:13 21:06	06:02 20:08	06:53 18:57	07:27 (G_III_01) 07:47 (G_III_01)	07:12 (G_III_04) 08:12 (G_III_03)	07:39 16:01	08:42 (G_III_05) 09:11 (G_III_05)	08:11 15:55	08:58 (G_III_05) 09:21 (G_III_08)
26	05:14 21:04	06:03 20:06	06:54 18:55	07:26 (G_III_01) 07:46 (G_III_01)	07:13 (G_III_04) 08:12 (G_III_03)	07:40 16:00	08:42 (G_III_05) 09:11 (G_III_05)	08:11 15:56	08:59 (G_III_05) 09:21 (G_III_08)
27	05:16 21:03	06:05 20:04	06:56 18:52	07:26 (G_III_01) 07:46 (G_III_01)	07:16 (G_III_04) 08:12 (G_III_03)	07:42 15:59	08:42 (G_III_05) 09:11 (G_III_05)	08:12 15:56	08:59 (G_III_05) 09:22 (G_III_08)
28	05:17 21:01	06:07 20:02	06:58 18:50	07:27 (G_III_01) 07:46 (G_III_01)	07:40 (G_III_03) 08:11 (G_III_03)	07:44 15:58	08:43 (G_III_05) 09:12 (G_III_05)	08:12 15:57	08:59 (G_III_05) 09:22 (G_III_08)
29	05:19 21:00	06:08 19:59	06:59 18:48	07:27 (G_III_01) 07:44 (G_III_01)	07:40 (G_III_03) 08:11 (G_III_03)	07:45 15:57	08:43 (G_III_05) 09:12 (G_III_05)	08:12 15:58	08:59 (G_III_05) 09:22 (G_III_08)
30	05:20 20:58	06:10 19:57	07:01 18:45	07:28 (G_III_01) 07:42 (G_III_01)	07:41 (G_III_03) 08:10 (G_III_03)	07:47 15:56	08:44 (G_III_05) 09:12 (G_III_05)	08:12 15:59	08:59 (G_III_05) 09:23 (G_III_08)
31	05:22 20:57	06:12 19:55		06:55 16:38	07:42 (G_III_03) 08:10 (G_III_03)			08:12 16:00	09:00 (G_III_05) 09:23 (G_III_05)
Sonnenscheinstunden	503	454	381	331	266	793	243	750	
astr. max. mögl. Beschattung			201	973					

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 30 - Friedland, Günthersdorf 9

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	08:12 16:01 27	09:04 (G_III_05) 07:45 09:31 (G_III_05) 16:49 22	08:24 (G_III_06) 06:51 08:46 (G_III_06) 17:41 23	07:35 (G_III_02) 06:40 07:58 (G_III_02) 19:36 20:27	05:35 20:27 21:13	04:50 21:13
2	08:12 16:02 27	09:04 (G_III_05) 07:43 09:31 (G_III_05) 16:51 22	08:25 (G_III_06) 06:49 08:47 (G_III_06) 17:43 23	07:35 (G_III_02) 06:38 07:58 (G_III_02) 19:37 20:29	05:33 20:29 21:14	04:49 21:14 21:14
3	08:12 16:03 28	09:04 (G_III_05) 07:42 09:32 (G_III_05) 16:53 22	08:24 (G_III_03) 06:47 08:46 (G_III_06) 17:45 21	07:35 (G_III_02) 06:36 07:56 (G_III_02) 19:39 20:30	05:31 20:30 21:15	04:48 21:15 21:15
4	08:12 16:05 27	09:05 (G_III_05) 07:40 09:32 (G_III_05) 16:55 24	08:22 (G_III_03) 06:45 08:46 (G_III_06) 17:47 19	07:36 (G_III_02) 06:33 07:55 (G_III_02) 19:41 20:32	05:29 20:32 21:16	04:47 21:16 21:16
5	08:11 16:06 27	09:05 (G_III_05) 07:39 09:32 (G_III_05) 16:57 24	08:21 (G_III_03) 06:42 08:45 (G_III_06) 17:49 15	07:38 (G_III_02) 06:31 07:53 (G_III_02) 19:43 20:34	05:28 20:34 21:17	04:46 21:17 21:17
6	08:11 16:07 29	09:05 (G_III_05) 07:37 09:34 (G_III_05) 16:59 25	08:19 (G_III_03) 06:40 08:44 (G_III_03) 17:50 11	07:39 (G_III_02) 06:29 07:50 (G_III_02) 19:44 20:35	05:26 20:35 21:18	04:46 21:18 21:18
7	08:11 16:08 29	09:05 (G_III_05) 07:35 09:34 (G_III_05) 17:01 27	08:19 (G_III_03) 06:38 08:46 (G_III_03) 17:52 27	06:27 19:46 20:37	05:24 20:37 21:19	04:45 21:19 21:19
8	08:10 16:10 29	09:06 (G_III_05) 07:33 09:35 (G_III_05) 17:02 29	08:18 (G_III_03) 06:36 08:47 (G_III_03) 17:54 29	06:24 19:48 20:39	05:22 20:39 21:20	04:45 21:20 21:20
9	08:10 16:11 29	09:06 (G_III_05) 07:32 09:35 (G_III_05) 17:04 30	08:18 (G_III_03) 06:33 08:48 (G_III_03) 17:56 30	06:22 19:49 20:40	05:20 20:40 21:21	04:44 21:21 21:21
10	08:09 16:12 29	09:06 (G_III_05) 07:30 09:35 (G_III_05) 17:06 31	08:17 (G_III_03) 06:31 08:48 (G_III_03) 17:57 8	06:56 (G_III_01) 06:20 07:04 (G_III_01) 19:51 20:42	05:19 20:42 21:22	04:44 21:22 21:22
11	08:09 16:14 28	09:07 (G_III_05) 07:28 09:35 (G_III_05) 17:08 32	08:17 (G_III_03) 06:29 08:49 (G_III_03) 17:59 13	06:54 (G_III_01) 06:17 07:07 (G_III_01) 19:53 20:43	05:17 20:43 21:23	04:43 21:23 21:23
12	08:08 16:15 28	09:08 (G_III_05) 07:26 09:36 (G_III_05) 17:10 33	08:16 (G_III_03) 06:27 08:49 (G_III_03) 18:01 17	06:52 (G_III_01) 06:15 07:09 (G_III_01) 19:55 20:45	05:15 20:45 21:23	04:43 21:23 21:23
13	08:07 16:17 29	09:08 (G_III_05) 07:24 09:37 (G_III_05) 17:12 41	07:49 (G_III_04) 06:24 08:49 (G_III_03) 18:03 19	06:50 (G_III_01) 06:13 07:09 (G_III_01) 19:56 20:47	05:14 20:47 21:24	04:43 21:24 21:24
14	08:06 16:18 29	09:08 (G_III_05) 07:22 09:37 (G_III_05) 17:14 45	07:47 (G_III_04) 06:22 08:49 (G_III_03) 18:05 19	06:50 (G_III_01) 06:11 07:09 (G_III_01) 19:58 20:48	05:12 20:48 21:25	04:42 21:25 21:25
15	08:06 16:20 28	09:09 (G_III_05) 07:20 09:37 (G_III_05) 17:16 48	07:46 (G_III_04) 06:20 08:49 (G_III_03) 18:06 21	06:49 (G_III_01) 06:09 07:10 (G_III_01) 20:00 20:50	05:10 20:50 21:25	04:42 21:25 21:25
16	08:05 16:21 27	09:10 (G_III_05) 07:18 09:37 (G_III_05) 17:17 49	07:45 (G_III_04) 06:17 08:49 (G_III_03) 18:08 21	06:48 (G_III_01) 06:06 07:09 (G_III_01) 20:01 20:51	05:09 20:51 21:26	04:42 21:26 21:26
17	08:04 16:23 27	09:10 (G_III_05) 07:16 09:37 (G_III_05) 17:19 51	07:44 (G_III_04) 06:15 08:49 (G_III_03) 18:10 21	06:48 (G_III_01) 06:04 07:09 (G_III_01) 20:03 20:53	05:07 20:53 21:26	04:42 21:26 21:26
18	08:03 16:25 27	09:11 (G_III_05) 07:14 09:38 (G_III_05) 17:21 50	07:44 (G_III_04) 06:13 08:48 (G_III_03) 18:11 20	06:49 (G_III_01) 06:02 07:09 (G_III_01) 20:05 20:54	05:06 20:54 21:27	04:42 21:27 21:27
19	08:02 16:26 26	09:11 (G_III_05) 07:12 09:37 (G_III_05) 17:23 48	07:44 (G_III_02) 06:11 08:47 (G_III_03) 18:13 18	06:49 (G_III_01) 06:00 07:07 (G_III_01) 20:07 20:56	05:05 20:56 21:27	04:42 21:27 21:27
20	08:01 16:28 25	09:12 (G_III_05) 07:10 09:37 (G_III_05) 17:25 50	07:41 (G_III_02) 06:08 08:47 (G_III_03) 18:15 16	06:50 (G_III_01) 05:58 07:06 (G_III_01) 20:08 20:57	05:03 20:57 21:27	04:42 21:27 21:27
21	08:00 16:30 24	09:13 (G_III_05) 07:08 09:37 (G_III_05) 17:27 50	07:38 (G_III_02) 06:06 08:45 (G_III_03) 18:17 13	06:51 (G_III_01) 05:56 07:04 (G_III_01) 20:10 20:59	05:02 20:59 21:27	04:42 21:27 21:27
22	07:59 16:31 27	08:31 (G_III_06) 07:06 09:36 (G_III_05) 17:28 47	07:37 (G_III_02) 06:04 08:43 (G_III_03) 18:18 8	06:53 (G_III_01) 05:53 07:01 (G_III_01) 20:12 21:00	05:00 21:00 21:28	04:42 21:28 21:28
23	07:57 16:33 30	08:28 (G_III_06) 07:04 09:35 (G_III_05) 17:30 44	07:36 (G_III_02) 06:01 08:41 (G_III_03) 18:20 21	05:51 20:13 21:02	04:59 21:02 21:28	04:43 21:28 21:28
24	07:56 16:35 32	08:27 (G_III_06) 07:02 09:35 (G_III_05) 17:32 38	07:35 (G_III_02) 05:59 08:39 (G_III_03) 18:22 38	05:49 20:15 21:03	04:58 21:03 21:28	04:43 21:28 21:28
25	07:55 16:37 30	08:26 (G_III_06) 07:00 09:33 (G_III_05) 17:34 28	07:35 (G_III_02) 05:57 08:34 (G_III_03) 18:24 28	05:47 20:17 21:04	04:57 21:04 21:28	04:43 21:28 21:28
26	07:54 16:38 27	08:26 (G_III_06) 06:58 09:31 (G_III_05) 17:36 24	07:35 (G_III_02) 05:54 07:59 (G_III_02) 18:25 24	05:45 20:18 21:06	04:56 21:06 21:28	04:44 21:28 21:28
27	07:52 16:40 18	08:25 (G_III_06) 06:56 08:43 (G_III_06) 17:38 25	07:34 (G_III_02) 05:52 07:59 (G_III_02) 18:27 25	05:43 20:20 21:07	04:54 21:07 21:28	04:44 21:28 21:28
28	07:51 16:42 20	08:25 (G_III_06) 06:53 08:45 (G_III_06) 17:39 24	07:34 (G_III_02) 05:50 07:58 (G_III_02) 18:29 24	05:41 20:22 21:08	04:53 21:08 21:28	04:45 21:28 21:28
29	07:50 16:44 21	08:24 (G_III_06) 06:47 08:45 (G_III_06) 17:39 21	06:47 19:31 20:24	05:39 21:10 21:28	04:52 21:28 21:28	04:45 21:28 21:28
30	07:48 16:46 21	08:25 (G_III_06) 06:45 08:46 (G_III_06) 17:39 21	06:45 19:32 20:25	05:37 21:11 21:27	04:51 21:27 21:27	04:46 21:27 21:27
31	07:47 16:47 22	08:24 (G_III_06) 06:43 08:46 (G_III_06) 17:39 22	06:43 19:34 20:25	04:50 21:12 21:27	04:50 21:27 21:27	04:46 21:27 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	827	983	326			

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 Layout GIII_33 Schattenrezeptor: IO 30 - Friedland, Günthersdorf 9

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

	Juli	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:31 (G_III_01) 16:36	07:47 (G_III_03) 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	06:59 16:35	07:47 (G_III_03) 15:55
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:47 (G_III_01) 16:33	07:48 (G_III_03) 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:49 (G_III_03) 15:54
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	07:04 16:29	07:50 (G_III_03) 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:06 16:27	08:15 (G_III_03) 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:08 16:26	07:53 (G_III_03) 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	08:17 (G_III_02) 16:24	07:54 (G_III_03) 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	08:24 (G_III_02) 16:22	08:16 (G_III_06) 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	08:12 (G_III_02) 16:21	07:55 (G_III_06) 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	08:29 (G_III_02) 16:19	08:17 (G_III_06) 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	08:09 (G_III_02) 16:18	07:56 (G_III_06) 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	08:31 (G_III_02) 16:16	08:17 (G_III_06) 15:51
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	08:08 (G_III_02) 16:15	07:57 (G_III_06) 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	08:07 (G_III_02) 16:13	07:58 (G_III_06) 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	08:31 (G_III_02) 16:12	09:00 (G_III_05) 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	08:06 (G_III_02) 16:10	09:05 (G_III_05) 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	08:07 (G_III_02) 16:09	08:01 (G_III_06) 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	08:08 (G_III_02) 16:08	08:03 (G_III_06) 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	09:13 (G_III_03) 16:06	09:10 (G_III_05) 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	08:09 (G_III_02) 16:05	08:06 (G_III_06) 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	08:11 (G_III_02) 16:04	08:48 (G_III_05) 15:53
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	08:13 (G_III_04) 16:03	09:13 (G_III_05) 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	08:14 (G_III_04) 16:02	08:48 (G_III_05) 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	06:44 16:50	08:18 (G_III_04) 16:01	08:48 (G_III_05) 15:55
26	05:14 21:04	06:03 20:06	06:54 18:55	06:46 16:48	07:15 (G_III_04) 16:00	08:48 (G_III_05) 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 16:46	08:18 (G_III_03) 15:59	08:48 (G_III_05) 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	06:50 16:44	07:16 (G_III_04) 15:58	08:49 (G_III_05) 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	06:51 16:42	08:19 (G_III_03) 15:57	08:48 (G_III_05) 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40	07:46 (G_III_03) 15:56	08:49 (G_III_05) 15:59
31	05:22 20:57	06:12 19:55		06:55 16:38	08:18 (G_III_03)	08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
astr. max. mögl. Beschattung			172	897	779	820

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 Layout GIII_33 Schattenrezeptor: IO 31 - Friedland, Günthersdorf 8B

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	Jun
1	08:12		09:09 (G_III_05)	07:45		08:28 (G_III_03)	06:51		07:42 (G_III_02)	06:40	05:35	04:50
	16:01	28	09:37 (G_III_05)	16:49	22	08:50 (G_III_03)	17:41	20	08:02 (G_III_02)	19:36	20:27	21:13
2	08:12		09:09 (G_III_05)	07:43		08:27 (G_III_03)	06:49		07:43 (G_III_02)	06:38	05:33	04:49
	16:02	28	09:37 (G_III_05)	16:51	25	08:52 (G_III_03)	17:43	18	08:01 (G_III_02)	19:37	20:29	21:14
3	08:12		09:10 (G_III_05)	07:42		08:26 (G_III_03)	06:47		07:44 (G_III_02)	06:36	05:31	04:48
	16:03	28	09:38 (G_III_05)	16:53	27	08:53 (G_III_03)	17:45	14	07:58 (G_III_02)	19:39	20:30	21:15
4	08:12		09:10 (G_III_05)	07:40		08:25 (G_III_03)	06:45		07:48 (G_III_02)	06:33	05:29	04:47
	16:05	29	09:39 (G_III_05)	16:55	28	08:53 (G_III_03)	17:47	6	07:54 (G_III_02)	19:41	20:32	21:16
5	08:11		09:10 (G_III_05)	07:39		08:24 (G_III_03)	06:42			06:31	05:28	04:46
	16:06	29	09:39 (G_III_05)	16:57	30	08:54 (G_III_03)	17:49			19:43	20:34	21:17
6	08:11		09:11 (G_III_05)	07:37		08:24 (G_III_03)	06:40			06:29	05:26	04:46
	16:07	28	09:39 (G_III_05)	16:59	30	08:54 (G_III_03)	17:50			19:44	20:35	21:18
7	08:11		09:11 (G_III_05)	07:35		08:24 (G_III_03)	06:38			06:27	05:24	04:45
	16:08	28	09:39 (G_III_05)	17:01	32	08:56 (G_III_03)	17:52			19:46	20:37	21:19
8	08:10		09:12 (G_III_05)	07:33		08:24 (G_III_03)	06:36		07:01 (G_III_01)	06:24	05:22	04:45
	16:10	28	09:40 (G_III_05)	17:02	32	08:56 (G_III_03)	17:54	9	07:10 (G_III_01)	19:48	20:39	21:20
9	08:10		09:12 (G_III_05)	07:32		08:24 (G_III_03)	06:33		06:59 (G_III_01)	06:22	05:20	04:44
	16:11	28	09:40 (G_III_05)	17:04	32	08:56 (G_III_03)	17:56	14	07:13 (G_III_01)	19:49	20:40	21:21
10	08:09		09:13 (G_III_05)	07:30		08:24 (G_III_03)	06:31		06:57 (G_III_01)	06:20	05:19	04:44
	16:12	27	09:40 (G_III_05)	17:06	32	08:56 (G_III_03)	17:57	16	07:13 (G_III_01)	19:51	20:42	21:22
11	08:09		09:13 (G_III_05)	07:28		07:53 (G_III_04)	06:29		06:56 (G_III_01)	06:17	05:17	04:43
	16:14	27	09:40 (G_III_05)	17:08	41	08:56 (G_III_03)	17:59	18	07:14 (G_III_01)	19:53	20:43	21:23
12	08:08		09:14 (G_III_05)	07:26		07:51 (G_III_04)	06:27		06:55 (G_III_01)	06:15	05:15	04:43
	16:15	27	09:41 (G_III_05)	17:10	45	08:56 (G_III_03)	18:01	20	07:15 (G_III_01)	19:55	20:45	21:23
13	08:07		09:15 (G_III_05)	07:24		07:50 (G_III_04)	06:24		06:54 (G_III_01)	06:13	05:14	04:43
	16:17	27	09:42 (G_III_05)	17:12	47	08:56 (G_III_03)	18:03	20	07:14 (G_III_01)	19:56	20:47	21:24
14	08:06		09:15 (G_III_05)	07:22		07:49 (G_III_04)	06:22		06:54 (G_III_01)	06:11	05:12	04:42
	16:18	27	09:42 (G_III_05)	17:14	48	08:55 (G_III_03)	18:05	20	07:14 (G_III_01)	19:58	20:48	21:25
15	08:06		09:16 (G_III_05)	07:20		07:49 (G_III_04)	06:20		06:54 (G_III_01)	06:09	05:10	04:42
	16:20	26	09:42 (G_III_05)	17:16	48	08:55 (G_III_03)	18:06	20	07:14 (G_III_01)	20:00	20:50	21:25
16	08:05		09:17 (G_III_05)	07:18		07:48 (G_III_04)	06:17		06:53 (G_III_01)	06:06	05:09	04:42
	16:21	25	09:42 (G_III_05)	17:17	47	08:54 (G_III_03)	18:08	20	07:13 (G_III_01)	20:01	20:51	21:26
17	08:04		09:18 (G_III_05)	07:16		07:47 (G_III_02)	06:15		06:54 (G_III_01)	06:04	05:07	04:42
	16:23	23	09:41 (G_III_05)	17:19	47	08:53 (G_III_03)	18:10	18	07:12 (G_III_01)	20:03	20:53	21:26
18	08:03		09:19 (G_III_05)	07:14		07:45 (G_III_02)	06:13		06:55 (G_III_01)	06:02	05:06	04:42
	16:25	22	09:41 (G_III_05)	17:21	46	08:52 (G_III_03)	18:11	16	07:11 (G_III_01)	20:05	20:54	21:27
19	08:02		08:33 (G_III_06)	07:12		07:44 (G_III_02)	06:11		06:56 (G_III_01)	06:00	05:05	04:42
	16:26	28	09:40 (G_III_05)	17:23	45	08:51 (G_III_03)	18:13	13	07:09 (G_III_01)	20:07	20:56	21:27
20	08:01		08:32 (G_III_06)	07:10		07:43 (G_III_02)	06:08		06:58 (G_III_01)	05:58	05:03	04:42
	16:28	30	09:40 (G_III_05)	17:25	42	08:49 (G_III_03)	18:15	8	07:06 (G_III_01)	20:08	20:57	21:27
21	08:00		08:31 (G_III_06)	07:08		07:41 (G_III_02)	06:06			05:56	05:02	04:42
	16:30	30	09:39 (G_III_05)	17:27	36	08:45 (G_III_03)	18:17			20:10	20:59	21:27
22	07:59		08:31 (G_III_06)	07:06		07:41 (G_III_02)	06:04			05:53	05:00	04:42
	16:31	29	09:38 (G_III_05)	17:28	23	08:04 (G_III_02)	18:18			20:12	21:00	21:28
23	07:57		08:29 (G_III_06)	07:04		07:40 (G_III_02)	06:01			05:51	04:59	04:43
	16:33	28	09:36 (G_III_05)	17:30	25	08:05 (G_III_02)	18:20			20:13	21:02	21:28
24	07:56		08:29 (G_III_06)	07:02		07:40 (G_III_02)	05:59			05:49	04:58	04:43
	16:35	19	08:48 (G_III_06)	17:32	25	08:05 (G_III_02)	18:22			20:15	21:03	21:28
25	07:55		08:28 (G_III_06)	07:00		07:40 (G_III_02)	05:57			05:47	04:57	04:43
	16:37	20	08:48 (G_III_06)	17:34	25	08:05 (G_III_02)	18:24			20:17	21:04	21:28
26	07:54		08:29 (G_III_06)	06:58		07:41 (G_III_02)	05:54			05:45	04:56	04:44
	16:38	20	08:49 (G_III_06)	17:36	24	08:05 (G_III_02)	18:25			20:18	21:06	21:28
27	07:52		08:28 (G_III_06)	06:56		07:40 (G_III_02)	05:52			05:43	04:54	04:44
	16:40	21	08:49 (G_III_06)	17:38	23	08:03 (G_III_02)	18:27			20:20	21:07	21:28
28	07:51		08:29 (G_III_06)	06:53		07:41 (G_III_02)	05:50			05:41	04:53	04:45
	16:42	21	08:50 (G_III_06)	17:39	22	08:03 (G_III_02)	18:29			20:22	21:08	21:28
29	07:50		08:29 (G_III_06)				06:47			05:39	04:52	04:45
	16:44	21	08:50 (G_III_06)				19:31			20:24	21:10	21:28
30	07:48		08:29 (G_III_06)				06:45			05:37	04:51	04:46
	16:46	22	08:51 (G_III_06)				19:32			20:25	21:11	21:27
31	07:47		08:29 (G_III_03)				06:43				04:50	
	16:47	22	08:51 (G_III_06)				19:34				21:12	
Sonnenscheinstunden	258			277			367			416	486	500
astr.max.mögl.Beschattung		796			949			270				

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 Layout GIII_33 Schattenrezeptor: IO 31 - Friedland, Günthersdorf 8B

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

	Juli	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:34 (G_III_01) 16:36	07:53 (G_III_03) 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	07:34 (G_III_01) 16:35	07:53 (G_III_03) 15:55
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:34 (G_III_01) 16:33	07:54 (G_III_03) 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:35 (G_III_01) 16:31	07:54 (G_III_03) 15:54
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	07:37 (G_III_01) 16:29	07:55 (G_III_03) 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:40 (G_III_01) 16:27	07:55 (G_III_03) 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:44 (G_III_01) 16:27	07:56 (G_III_03) 15:53
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	07:08 16:26	07:56 (G_III_03) 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:11 16:22	07:57 (G_III_03) 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	08:20 (G_III_02) 16:21	07:59 (G_III_03) 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	08:17 (G_III_02) 16:19	08:00 (G_III_03) 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	08:16 (G_III_02) 16:18	08:00 (G_III_06) 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	08:30 (G_III_02) 16:16	08:22 (G_III_06) 15:51
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	08:35 (G_III_02) 16:15	08:01 (G_III_06) 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	08:12 (G_III_02) 16:13	08:01 (G_III_06) 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	08:36 (G_III_02) 16:12	08:02 (G_III_06) 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	08:12 (G_III_02) 16:10	08:02 (G_III_06) 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	08:12 (G_III_02) 16:09	08:03 (G_III_06) 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	08:12 (G_III_02) 16:08	08:04 (G_III_06) 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	08:36 (G_III_02) 16:06	09:11 (G_III_05) 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	08:12 (G_III_02) 16:05	08:06 (G_III_06) 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	09:18 (G_III_03) 16:04	08:08 (G_III_06) 15:53
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	08:14 (G_III_02) 16:03	08:10 (G_III_06) 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	09:21 (G_III_03) 16:02	08:11 (G_III_05) 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 (G_III_01) 16:50	08:15 (G_III_02) 16:01	08:11 (G_III_05) 15:55
26	05:14 21:04	06:03 20:06	06:54 18:55	07:46 16:48	08:23 (G_III_03) 16:00	08:19 (G_III_05) 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	07:36 (G_III_01) 16:46	07:18 (G_III_04) 15:59	08:12 (G_III_05) 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	07:35 (G_III_01) 16:44	07:18 (G_III_04) 15:58	08:12 (G_III_05) 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	07:34 (G_III_01) 16:42	08:25 (G_III_03) 15:57	08:12 (G_III_05) 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	07:34 (G_III_01) 16:40	07:21 (G_III_04) 15:56	08:12 (G_III_05) 15:59
31	05:22 20:57	06:12 19:55		07:54 (G_III_01) 16:38	08:26 (G_III_03) 15:56	08:12 (G_III_05) 16:00
Sonnenscheinstunden	503	454	381	331	266	243
astr. max. mögl. Beschattung			131	823	780	862

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 Layout GIII_33 Schattenrezeptor: IO 32 - Friedland, Günthersdorf 8

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	08:12		09:13 (G_III_05)	07:45		08:30 (G_III_03)	06:51		07:48 (G_III_02)	06:40	05:35	04:50
	16:01	28	09:41 (G_III_05)	16:49	27	08:57 (G_III_03)	17:41	15	08:03 (G_III_02)	19:36	20:27	21:13
2	08:12		09:12 (G_III_05)	07:43		08:30 (G_III_03)	06:49		07:51 (G_III_02)	06:38	05:33	04:49
	16:02	28	09:40 (G_III_05)	16:51	28	08:58 (G_III_03)	17:43	9	08:00 (G_III_02)	19:37	20:29	21:14
3	08:12		09:13 (G_III_05)	07:42		08:29 (G_III_03)	06:47			06:36	05:31	04:48
	16:03	28	09:41 (G_III_05)	16:53	30	08:59 (G_III_03)	17:45			19:39	20:30	21:15
4	08:12		09:14 (G_III_05)	07:40		08:28 (G_III_03)	06:45			06:33	05:29	04:47
	16:05	28	09:42 (G_III_05)	16:55	31	08:59 (G_III_03)	17:47			19:41	20:32	21:16
5	08:11		09:14 (G_III_05)	07:39		08:28 (G_III_03)	06:42			06:31	05:28	04:46
	16:06	28	09:42 (G_III_05)	16:57	32	09:00 (G_III_03)	17:49			19:43	20:34	21:17
6	08:11		09:15 (G_III_05)	07:37		08:28 (G_III_03)	06:40		07:06 (G_III_01)	06:29	05:26	04:46
	16:07	28	09:43 (G_III_05)	16:59	32	09:00 (G_III_03)	17:50	5	07:11 (G_III_01)	19:44	20:35	21:18
7	08:11		09:15 (G_III_05)	07:35		08:28 (G_III_03)	06:38		07:03 (G_III_01)	06:27	05:24	04:45
	16:08	28	09:43 (G_III_05)	17:01	33	09:01 (G_III_03)	17:52	12	07:15 (G_III_01)	19:46	20:37	21:19
8	08:10		09:16 (G_III_05)	07:33		08:28 (G_III_03)	06:36		07:01 (G_III_01)	06:24	05:22	04:45
	16:10	27	09:43 (G_III_05)	17:02	33	09:01 (G_III_03)	17:54	16	07:17 (G_III_01)	19:48	20:39	21:20
9	08:10		09:16 (G_III_05)	07:32		07:58 (G_III_04)	06:33		07:00 (G_III_01)	06:22	05:20	04:44
	16:11	27	09:43 (G_III_05)	17:04	38	09:01 (G_III_03)	17:56	18	07:18 (G_III_01)	19:49	20:40	21:21
10	08:09		09:17 (G_III_05)	07:30		07:55 (G_III_04)	06:31		06:58 (G_III_01)	06:20	05:19	04:44
	16:12	26	09:43 (G_III_05)	17:06	43	09:01 (G_III_03)	17:57	20	07:18 (G_III_01)	19:51	20:42	21:22
11	08:09		09:17 (G_III_05)	07:28		07:53 (G_III_04)	06:29		06:58 (G_III_01)	06:17	05:17	04:43
	16:14	26	09:43 (G_III_05)	17:08	46	09:00 (G_III_03)	17:59	20	07:18 (G_III_01)	19:53	20:43	21:23
12	08:08		09:19 (G_III_05)	07:26		07:52 (G_III_04)	06:27		06:58 (G_III_01)	06:15	05:15	04:43
	16:15	25	09:44 (G_III_05)	17:10	48	09:00 (G_III_03)	18:01	21	07:19 (G_III_01)	19:55	20:45	21:23
13	08:07		09:19 (G_III_05)	07:24		07:52 (G_III_04)	06:24		06:57 (G_III_01)	06:13	05:14	04:43
	16:17	25	09:44 (G_III_05)	17:12	46	08:59 (G_III_03)	18:03	21	07:18 (G_III_01)	19:56	20:47	21:24
14	08:06		09:20 (G_III_05)	07:22		07:51 (G_III_04)	06:22		06:57 (G_III_01)	06:11	05:12	04:42
	16:18	24	09:44 (G_III_05)	17:14	47	08:58 (G_III_03)	18:04	20	07:17 (G_III_01)	19:58	20:48	21:25
15	08:06		09:21 (G_III_05)	07:20		07:51 (G_III_02)	06:20		06:58 (G_III_01)	06:09	05:10	04:42
	16:20	23	09:44 (G_III_05)	17:16	45	08:57 (G_III_03)	18:06	19	07:17 (G_III_01)	20:00	20:50	21:25
16	08:05		09:22 (G_III_05)	07:18		07:49 (G_III_02)	06:17		06:58 (G_III_01)	06:06	05:09	04:42
	16:21	21	09:43 (G_III_05)	17:17	44	08:56 (G_III_03)	18:08	17	07:15 (G_III_01)	20:01	20:51	21:26
17	08:04		08:36 (G_III_06)	07:16		07:48 (G_III_02)	06:15		06:59 (G_III_01)	06:04	05:07	04:42
	16:23	27	09:43 (G_III_05)	17:19	43	08:55 (G_III_03)	18:10	15	07:14 (G_III_01)	20:03	20:53	21:26
18	08:03		08:35 (G_III_06)	07:14		07:47 (G_III_02)	06:13		07:01 (G_III_01)	06:02	05:06	04:42
	16:25	30	09:43 (G_III_05)	17:21	40	08:53 (G_III_03)	18:11	11	07:12 (G_III_01)	20:05	20:54	21:27
19	08:02		08:33 (G_III_06)	07:12		07:46 (G_III_02)	06:11			06:00	05:05	04:42
	16:26	30	09:41 (G_III_05)	17:23	34	08:50 (G_III_03)	18:13			20:07	20:56	21:27
20	08:01		08:32 (G_III_06)	07:10		07:45 (G_III_02)	06:08			05:58	05:03	04:42
	16:28	29	09:40 (G_III_05)	17:25	24	08:09 (G_III_02)	18:15			20:08	20:57	21:27
21	08:00		08:32 (G_III_06)	07:08		07:44 (G_III_02)	06:06			05:56	05:02	04:42
	16:30	25	09:38 (G_III_05)	17:27	24	08:08 (G_III_02)	18:17			20:10	20:59	21:27
22	07:59		08:32 (G_III_06)	07:06		07:44 (G_III_02)	06:04			05:53	05:00	04:42
	16:31	19	08:51 (G_III_06)	17:28	24	08:08 (G_III_02)	18:18			20:12	21:00	21:28
23	07:57		08:31 (G_III_06)	07:04		07:44 (G_III_02)	06:01			05:51	04:59	04:43
	16:33	20	08:51 (G_III_06)	17:30	24	08:08 (G_III_02)	18:20			20:13	21:02	21:28
24	07:56		08:32 (G_III_06)	07:02		07:44 (G_III_02)	05:59			05:49	04:58	04:43
	16:35	20	08:52 (G_III_06)	17:32	24	08:08 (G_III_02)	18:22			20:15	21:03	21:28
25	07:55		08:31 (G_III_06)	07:00		07:45 (G_III_02)	05:57			05:47	04:57	04:43
	16:37	21	08:52 (G_III_06)	17:34	23	08:08 (G_III_02)	18:24			20:17	21:04	21:28
26	07:54		08:31 (G_III_06)	06:58		07:45 (G_III_02)	05:54			05:45	04:56	04:44
	16:38	22	08:53 (G_III_06)	17:36	22	08:07 (G_III_02)	18:25			20:18	21:06	21:28
27	07:52		08:31 (G_III_06)	06:56		07:45 (G_III_02)	05:52			05:43	04:54	04:44
	16:40	22	08:53 (G_III_06)	17:38	21	08:06 (G_III_02)	18:27			20:20	21:07	21:28
28	07:51		08:32 (G_III_06)	06:53		07:47 (G_III_02)	05:50			05:41	04:53	04:45
	16:42	21	08:53 (G_III_06)	17:39	17	08:04 (G_III_02)	18:29			20:22	21:08	21:28
29	07:50		08:32 (G_III_03)				06:47			05:39	04:52	04:45
	16:44	21	08:53 (G_III_03)				19:31			20:24	21:10	21:28
30	07:48		08:32 (G_III_03)				06:45			05:37	04:51	04:46
	16:46	23	08:55 (G_III_03)				19:32			20:25	21:11	21:27
31	07:47		08:31 (G_III_03)				06:43				04:50	
	16:47	25	08:56 (G_III_03)				19:34				21:12	
Sonnenscheinstunden				277			367			416	486	500
astr.max.mögl.Beschattung			775		923		239					

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 Layout GIII_33 Schattenrezeptor: IO 32 - Friedland, Günthersdorf 8

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

	July	August	September	Oktober	November	Dezember	
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:37 (G_III_01) 16:36	07:25 (G_III_04) 15:56	07:48 08:59 (G_III_05)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	20 07:57 (G_III_01) 16:35	42 08:30 (G_III_03) 15:55	26 09:25 (G_III_05) 09:00 (G_III_05)
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	20 07:36 (G_III_01) 16:33	36 08:30 (G_III_03) 15:55	26 09:26 (G_III_05) 09:01 (G_III_05)
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	18 07:57 (G_III_01) 16:31	32 08:30 (G_III_03) 15:54	26 09:27 (G_III_05) 09:00 (G_III_05)
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	16 07:38 (G_III_01) 16:29	32 07:58 (G_III_03) 15:53	27 09:27 (G_III_05) 09:00 (G_III_05)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	16 07:54 (G_III_01) 16:27	32 08:30 (G_III_03) 15:53	28 09:28 (G_III_05) 09:01 (G_III_05)
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	14 07:52 (G_III_01) 16:27	31 08:30 (G_III_03) 15:53	28 09:29 (G_III_05) 09:01 (G_III_05)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	9 07:40 (G_III_01) 16:26	31 07:59 (G_III_03) 15:52	28 09:29 (G_III_05) 09:01 (G_III_05)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25		30 07:59 (G_III_03) 15:52	28 09:29 (G_III_05) 09:02 (G_III_05)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22		30 08:29 (G_III_03) 15:52	28 09:29 (G_III_05) 09:02 (G_III_05)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20		28 08:00 (G_III_03) 15:52	28 09:30 (G_III_05) 09:03 (G_III_05)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	11 08:23 (G_III_02) 16:18	27 08:01 (G_III_03) 15:52	28 09:31 (G_III_05) 09:03 (G_III_05)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	16 08:34 (G_III_02) 16:18	25 08:02 (G_III_03) 15:51	28 09:32 (G_III_05) 09:04 (G_III_05)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	19 08:21 (G_III_02) 16:16	25 08:25 (G_III_03) 15:51	28 09:33 (G_III_05) 09:04 (G_III_05)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	19 08:19 (G_III_02) 16:15	21 08:04 (G_III_06) 15:51	28 09:34 (G_III_05) 09:05 (G_III_05)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	21 08:38 (G_III_02) 16:13	22 08:04 (G_III_06) 15:51	28 09:35 (G_III_05) 09:05 (G_III_05)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	23 08:16 (G_III_02) 16:10	22 08:26 (G_III_06) 15:51	28 09:36 (G_III_05) 09:06 (G_III_05)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	23 08:39 (G_III_02) 16:09	21 08:05 (G_III_06) 15:52	28 09:37 (G_III_05) 09:07 (G_III_05)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	25 08:15 (G_III_02) 16:08	20 08:06 (G_III_06) 15:52	27 09:38 (G_III_05) 09:08 (G_III_05)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	25 08:40 (G_III_02) 16:06	20 08:26 (G_III_06) 15:52	27 09:39 (G_III_05) 09:09 (G_III_05)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	25 08:15 (G_III_02) 16:05	19 08:07 (G_III_06) 15:53	28 09:40 (G_III_05) 09:10 (G_III_05)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	24 08:39 (G_III_02) 16:04	25 08:08 (G_III_06) 15:53	28 09:41 (G_III_05) 09:11 (G_III_05)
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	23 08:15 (G_III_02) 16:03	29 09:13 (G_III_05) 15:53	28 09:42 (G_III_05) 09:12 (G_III_05)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	36 09:20 (G_III_03) 16:03	29 08:10 (G_III_06) 15:54	28 09:43 (G_III_05) 09:13 (G_III_05)
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 16:50	41 08:16 (G_III_02) 16:02	29 08:12 (G_III_06) 15:54	28 09:44 (G_III_05) 09:14 (G_III_05)
26	05:14 21:04	06:03 20:06	06:54 18:55	07:45 (G_III_01) 16:48	45 07:17 (G_III_02) 16:01	28 08:14 (G_III_06) 15:55	28 09:45 (G_III_05) 09:15 (G_III_05)
27	05:16 21:03	06:05 20:04	06:56 18:52	07:46 (G_III_01) 16:46	45 07:19 (G_III_02) 16:00	21 09:00 (G_III_05) 15:56	28 09:46 (G_III_05) 09:16 (G_III_05)
28	05:17 21:01	06:07 20:02	06:58 18:50	07:47 (G_III_01) 16:44	45 08:26 (G_III_03) 15:59	23 09:21 (G_III_05) 15:57	28 09:47 (G_III_05) 09:17 (G_III_05)
29	05:19 21:00	06:08 19:59	06:59 18:48	07:48 (G_III_01) 16:42	46 07:21 (G_III_04) 15:58	24 09:00 (G_III_05) 15:58	27 09:48 (G_III_05) 09:18 (G_III_05)
30	05:20 20:58	06:10 19:57	07:01 18:45	07:49 (G_III_01) 16:40	48 07:22 (G_III_04) 15:57	25 08:59 (G_III_05) 15:58	28 09:49 (G_III_05) 09:19 (G_III_05)
31	05:22 20:57	06:12 19:55		07:50 (G_III_01) 16:38	46 08:29 (G_III_03) 15:56	25 09:24 (G_III_05) 15:59	28 09:50 (G_III_05) 09:20 (G_III_05)
Sonnenscheinstunden	503	454	381	331	266	243	859
astr.max.mögl.Beschattung			97	750	794		

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 Layout GIII_33 Schattenrezeptor: IO 33 - Friedland, Günthersdorf 7

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	08:12 16:01 27	09:20 (G_III_05) 07:45 09:47 (G_III_05) 16:49 32	08:35 (G_III_03) 06:51 09:07 (G_III_03) 17:41	06:40 19:36 20:27 21:13	05:35 20:27 21:13	04:50 21:13
2	08:12 16:02 27	09:20 (G_III_05) 07:43 09:47 (G_III_05) 16:51 32	08:36 (G_III_03) 06:49 09:08 (G_III_03) 17:43	06:38 19:37 20:29 21:14	05:33 20:29 21:14	04:49 21:14
3	08:12 16:03 26	09:21 (G_III_05) 07:42 09:47 (G_III_05) 16:53 32	08:36 (G_III_03) 06:47 09:08 (G_III_03) 17:45	06:36 19:39 20:30 21:15	05:31 20:30 21:15	04:48 21:15
4	08:12 16:05 26	09:22 (G_III_05) 07:40 09:48 (G_III_05) 16:55 32	08:36 (G_III_03) 06:45 09:08 (G_III_03) 17:47	06:33 19:41 20:32 21:16	05:29 20:32 21:16	04:47 21:16
5	08:11 16:06 26	09:22 (G_III_05) 07:39 09:48 (G_III_05) 16:57 32	08:36 (G_III_03) 06:42 09:08 (G_III_03) 17:49	06:31 19:43 20:34 21:17	05:28 20:34 21:17	04:46 21:17
6	08:11 16:07 25	09:23 (G_III_05) 07:37 09:48 (G_III_05) 16:59 32	08:36 (G_III_03) 06:40 09:08 (G_III_03) 17:50	06:29 19:44 20:35 21:18	05:26 20:35 21:18	04:46 21:18
7	08:11 16:08 25	09:23 (G_III_05) 07:35 09:48 (G_III_05) 17:01 39	08:01 (G_III_04) 06:38 09:08 (G_III_03) 17:52	06:27 19:46 20:37 21:19	05:24 20:37 21:19	04:45 21:19
8	08:10 16:10 25	09:24 (G_III_05) 07:33 09:49 (G_III_05) 17:02 43	07:59 (G_III_04) 06:36 09:08 (G_III_03) 17:54	06:24 19:48 20:39 21:20	05:22 20:39 21:20	04:45 21:20
9	08:10 16:11 23	09:25 (G_III_05) 07:32 09:48 (G_III_05) 17:04 45	07:58 (G_III_04) 06:33 09:07 (G_III_03) 17:56	06:22 19:49 20:40 21:21	05:20 20:40 21:21	04:44 21:21
10	08:09 16:12 23	09:25 (G_III_05) 07:30 09:48 (G_III_05) 17:06 46	07:57 (G_III_04) 06:31 09:07 (G_III_03) 17:57	06:20 19:51 20:42 21:22	05:19 20:42 21:22	04:44 21:22
11	08:09 16:14 22	09:26 (G_III_05) 07:28 09:48 (G_III_05) 17:08 45	07:56 (G_III_04) 06:29 09:06 (G_III_03) 17:59	06:17 19:53 20:43 21:23	05:17 20:43 21:23	04:43 21:23
12	08:08 16:15 20	09:28 (G_III_05) 07:26 09:48 (G_III_05) 17:10 44	07:56 (G_III_04) 06:27 09:05 (G_III_03) 18:01	06:15 19:55 20:45 21:23	05:15 20:45 21:23	04:43 21:23
13	08:07 16:17 26	08:40 (G_III_06) 07:24 09:48 (G_III_05) 17:12 43	07:55 (G_III_02) 06:24 09:04 (G_III_03) 18:03	06:13 19:56 20:47 21:24	05:14 20:47 21:24	04:43 21:24
14	08:06 16:18 27	08:39 (G_III_06) 07:22 09:47 (G_III_05) 17:14 40	07:54 (G_III_02) 06:22 09:02 (G_III_03) 18:04	06:11 19:58 20:48 21:25	05:12 20:48 21:25	04:42 21:25
15	08:06 16:20 29	08:38 (G_III_06) 07:20 09:47 (G_III_05) 17:15 38	07:52 (G_III_02) 06:20 09:00 (G_III_03) 18:06	06:09 20:00 20:50 21:25	05:10 20:50 21:25	04:42 21:25
16	08:05 16:21 28	08:37 (G_III_06) 07:18 09:46 (G_III_05) 17:17 29	07:52 (G_III_02) 06:17 08:56 (G_III_03) 18:08	06:06 20:01 20:51 21:26	05:09 20:51 21:26	04:42 21:26
17	08:04 16:23 25	08:37 (G_III_06) 07:16 09:44 (G_III_05) 17:19 24	07:51 (G_III_02) 06:15 08:15 (G_III_02) 18:10	06:04 20:03 20:53 21:26	05:07 20:53 21:26	04:42 21:26
18	08:03 16:25 17	08:37 (G_III_06) 07:14 08:54 (G_III_06) 17:21 24	07:51 (G_III_02) 06:13 08:15 (G_III_02) 18:11	06:02 20:05 20:54 21:27	05:06 20:54 21:27	04:42 21:27
19	08:02 16:26 18	08:36 (G_III_06) 07:12 08:54 (G_III_06) 17:23 24	07:51 (G_III_02) 06:11 08:15 (G_III_02) 18:13	06:00 20:07 20:56 21:27	05:05 20:56 21:27	04:42 21:27
20	08:01 16:28 19	08:36 (G_III_06) 07:10 08:55 (G_III_06) 17:25 24	07:51 (G_III_02) 06:08 08:15 (G_III_02) 18:15	05:58 20:08 20:57 21:27	05:03 20:57 21:27	04:42 21:27
21	08:00 16:30 20	08:36 (G_III_06) 07:08 08:56 (G_III_06) 17:27 24	07:50 (G_III_02) 06:06 08:14 (G_III_02) 18:17	05:56 20:10 20:59 21:27	05:02 20:59 21:27	04:42 21:27
22	07:59 16:31 21	08:36 (G_III_06) 07:06 08:57 (G_III_06) 17:28 24	07:50 (G_III_02) 06:04 08:14 (G_III_02) 18:18	05:53 20:12 21:00 21:28	05:00 21:00 21:28	04:42 21:28
23	07:57 16:33 22	08:36 (G_III_06) 07:04 08:58 (G_III_03) 17:30 22	07:51 (G_III_02) 06:01 08:13 (G_III_02) 18:20	05:51 20:13 21:02 21:28	04:59 21:02 21:28	04:43 21:28
24	07:56 16:35 24	08:36 (G_III_06) 07:02 09:00 (G_III_03) 17:32 21	07:52 (G_III_02) 05:59 08:13 (G_III_02) 18:22	05:49 20:15 21:03 21:28	04:58 21:03 21:28	04:43 21:28
25	07:55 16:37 25	08:36 (G_III_06) 07:00 09:01 (G_III_03) 17:34 19	07:53 (G_III_02) 05:57 08:12 (G_III_02) 18:24	05:47 20:17 21:04 21:28	04:57 21:04 21:28	04:43 21:28
26	07:54 16:38 25	08:37 (G_III_06) 06:58 09:02 (G_III_03) 17:36 16	07:53 (G_III_02) 05:54 08:09 (G_III_02) 18:25	05:45 20:18 21:06 21:28	04:56 21:06 21:28	04:44 21:28
27	07:52 16:40 26	08:37 (G_III_03) 06:56 09:03 (G_III_03) 17:38 12	07:55 (G_III_02) 05:52 08:07 (G_III_02) 18:27	05:43 20:20 21:07 21:28	04:54 21:07 21:28	04:44 21:28
28	07:51 16:42 28	08:37 (G_III_03) 06:53 09:05 (G_III_03) 17:39	05:50 18:29	05:41 20:22 21:08 21:28	04:53 21:08 21:28	04:45 21:28
29	07:50 16:44 29	08:36 (G_III_03) 06:47 09:05 (G_III_03) 17:39	06:47 19:31	05:39 20:24 21:10 21:28	04:52 21:10 21:28	04:45 21:28
30	07:48 16:46 29	08:37 (G_III_03) 06:45 09:06 (G_III_03) 17:39	06:45 19:32	05:37 20:25 21:11 21:27	04:51 21:11 21:27	04:46 21:27
31	07:47 16:47 31	08:36 (G_III_03) 06:43 09:07 (G_III_03) 17:39	06:43 19:34	04:50 21:12	04:50 21:12	04:46 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	764	838	218			

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 Layout GIII_33 Schattenrezeptor: IO 33 - Friedland, Günthersdorf 7
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

	Jul	August	September	Okt	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:42 (G_III_01) 16:36	07:27 (G_III_04) 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	07:41 (G_III_01) 16:35	07:28 (G_III_04) 15:55
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:40 (G_III_01) 16:33	07:29 (G_III_04) 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:40 (G_III_01) 16:31	07:31 (G_III_04) 15:52
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	07:40 (G_III_01) 16:29	07:31 (G_III_04) 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:40 (G_III_01) 16:27	07:31 (G_III_04) 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:41 (G_III_01) 16:26	07:31 (G_III_04) 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	07:42 (G_III_01) 16:24	07:31 (G_III_04) 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:44 (G_III_01) 16:22	07:31 (G_III_04) 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:44 (G_III_01) 16:21	07:31 (G_III_04) 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:44 (G_III_01) 16:19	07:31 (G_III_04) 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:44 (G_III_01) 16:18	07:31 (G_III_04) 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:44 (G_III_01) 16:16	07:31 (G_III_04) 15:51
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	07:44 (G_III_01) 16:15	07:31 (G_III_04) 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	07:44 (G_III_01) 16:13	07:31 (G_III_04) 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:44 (G_III_01) 16:12	07:31 (G_III_04) 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	07:44 (G_III_01) 16:10	07:31 (G_III_04) 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	07:44 (G_III_01) 16:09	07:31 (G_III_04) 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	07:44 (G_III_01) 16:08	07:31 (G_III_04) 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	07:44 (G_III_01) 16:06	07:31 (G_III_04) 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:44 (G_III_01) 16:05	07:31 (G_III_04) 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:44 (G_III_01) 16:04	07:31 (G_III_04) 15:53
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	07:44 (G_III_01) 16:03	07:31 (G_III_04) 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:44 (G_III_01) 16:02	07:31 (G_III_04) 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 16:50	07:44 (G_III_01) 16:01	07:31 (G_III_04) 15:55
26	05:14 21:04	06:03 20:06	06:54 18:55	07:46 16:48	07:44 (G_III_01) 16:00	07:31 (G_III_04) 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	07:48 (G_III_01) 16:46	07:44 (G_III_01) 15:59	07:31 (G_III_04) 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	07:50 (G_III_01) 16:44	07:44 (G_III_01) 15:58	07:31 (G_III_04) 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	07:52 (G_III_01) 16:42	07:44 (G_III_01) 15:57	07:31 (G_III_04) 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	07:54 (G_III_01) 16:40	07:44 (G_III_01) 15:56	07:31 (G_III_04) 15:59
31	05:22 20:57	06:12 19:55		07:56 (G_III_01) 16:38	07:44 (G_III_01) 15:56	07:31 (G_III_04) 16:00
Sonnenscheinstunden	503	454	381	331	266	243
astr.max.mögl.Beschattung			58	659	858	827

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 Layout GIII_33 Schattenrezeptor: IO 34 - Friedland, Günthersdorf 6

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	08:12 16:01 24	09:27 (G_III_05) 07:45 09:51 (G_III_05) 16:49 32	08:42 (G_III_03) 06:51 09:14 (G_III_03) 17:41		06:40 19:36 20:27 21:13	04:50 19:36 20:27 21:13
2	08:12 16:02 24	09:27 (G_III_05) 07:43 09:51 (G_III_05) 16:51 32	08:43 (G_III_03) 06:49 09:15 (G_III_03) 17:43 10	07:15 (G_III_01) 06:38 07:25 (G_III_01) 19:37 20:29 21:14	05:33 19:37 20:29 21:14	04:49 19:37 20:29 21:14
3	08:12 16:03 23	09:28 (G_III_05) 07:42 09:51 (G_III_05) 16:53 32	08:43 (G_III_03) 06:47 09:15 (G_III_03) 17:45 14	07:12 (G_III_01) 06:36 07:26 (G_III_01) 19:39 20:30 21:15	05:31 19:39 20:30 21:15	04:48 19:39 20:30 21:15
4	08:12 16:05 23	09:29 (G_III_05) 07:40 09:52 (G_III_05) 16:55 33	08:08 (G_III_04) 06:45 09:14 (G_III_03) 17:47 16	07:11 (G_III_01) 06:33 07:27 (G_III_01) 19:41 20:32 21:16	05:29 19:41 20:32 21:16	04:47 19:41 20:32 21:16
5	08:11 16:06 22	09:29 (G_III_05) 07:39 09:51 (G_III_05) 16:57 40	08:04 (G_III_04) 06:42 09:14 (G_III_03) 17:49 18	07:10 (G_III_01) 06:31 07:28 (G_III_01) 19:43 20:34 21:17	05:28 19:43 20:34 21:17	04:46 19:43 20:34 21:17
6	08:11 16:07 22	09:30 (G_III_05) 07:37 09:52 (G_III_05) 16:59 42	08:02 (G_III_04) 06:40 09:13 (G_III_03) 17:50 20	07:08 (G_III_01) 06:29 07:28 (G_III_01) 19:44 20:35 21:18	05:26 19:44 20:35 21:18	04:46 19:44 20:35 21:18
7	08:11 16:08 20	09:31 (G_III_05) 07:35 09:51 (G_III_05) 17:01 43	08:02 (G_III_04) 06:38 09:14 (G_III_03) 17:52 21	07:08 (G_III_01) 06:27 07:29 (G_III_01) 19:46 20:37 21:19	05:24 19:46 20:37 21:19	04:45 19:46 20:37 21:19
8	08:10 16:10 25	08:44 (G_III_06) 07:33 09:52 (G_III_05) 17:02 43	08:01 (G_III_04) 06:36 09:13 (G_III_03) 17:54 21	07:08 (G_III_01) 06:24 07:29 (G_III_01) 19:48 20:39 21:20	05:22 19:48 20:39 21:20	04:45 19:48 20:39 21:20
9	08:10 16:11 27	08:42 (G_III_06) 07:32 09:51 (G_III_05) 17:04 42	08:00 (G_III_04) 06:33 09:11 (G_III_03) 17:56 21	07:08 (G_III_01) 06:22 07:29 (G_III_01) 19:49 20:40 21:21	05:20 19:49 20:40 21:21	04:44 19:49 20:40 21:21
10	08:09 16:12 28	08:41 (G_III_06) 07:30 09:51 (G_III_05) 17:06 40	08:00 (G_III_04) 06:31 09:10 (G_III_03) 17:57 21	07:07 (G_III_01) 06:20 07:28 (G_III_01) 19:51 20:42 21:22	05:19 19:51 20:42 21:22	04:44 19:51 20:42 21:22
11	08:09 16:14 28	08:40 (G_III_06) 07:28 09:50 (G_III_05) 17:08 37	07:59 (G_III_02) 06:29 09:08 (G_III_03) 17:59 19	07:08 (G_III_01) 06:17 07:27 (G_III_01) 19:53 20:43 21:23	05:17 19:53 20:43 21:23	04:43 19:53 20:43 21:23
12	08:08 16:15 27	08:41 (G_III_06) 07:26 09:50 (G_III_05) 17:10 34	07:58 (G_III_02) 06:27 09:06 (G_III_03) 18:01 17	07:09 (G_III_01) 06:15 07:26 (G_III_01) 19:55 20:45 21:23	05:15 19:55 20:45 21:23	04:43 19:55 20:45 21:23
13	08:07 16:17 25	08:40 (G_III_06) 07:24 09:48 (G_III_05) 17:12 22	07:57 (G_III_02) 06:24 08:19 (G_III_02) 18:03 14	07:10 (G_III_01) 06:13 07:24 (G_III_01) 19:56 20:47 21:24	05:14 19:56 20:47 21:24	04:43 19:56 20:47 21:24
14	08:07 16:18 19	08:40 (G_III_06) 07:22 09:45 (G_III_05) 17:14 23	07:57 (G_III_02) 06:22 08:20 (G_III_02) 18:04 9	07:12 (G_III_01) 06:11 07:21 (G_III_01) 19:58 20:48 21:25	05:12 19:58 20:48 21:25	04:42 19:58 20:48 21:25
15	08:06 16:20 18	08:40 (G_III_06) 07:20 08:58 (G_III_06) 17:15 24	07:56 (G_III_02) 06:20 08:20 (G_III_02) 18:06 24	06:09 20:00 20:50 21:25	05:10 20:00 20:50 21:25	04:42 20:00 20:50 21:25
16	08:05 16:21 19	08:40 (G_III_06) 07:18 08:59 (G_III_06) 17:17 25	07:56 (G_III_02) 06:17 08:21 (G_III_02) 18:08 25	06:06 20:01 20:51 21:26	05:09 20:01 20:51 21:26	04:42 20:01 20:51 21:26
17	08:04 16:23 21	08:40 (G_III_06) 07:16 09:01 (G_III_03) 17:19 25	07:56 (G_III_02) 06:15 08:21 (G_III_02) 18:10 25	06:04 20:03 20:53 21:26	05:07 20:03 20:53 21:26	04:42 20:03 20:53 21:26
18	08:03 16:25 23	08:40 (G_III_06) 07:14 09:03 (G_III_03) 17:21 25	07:56 (G_III_02) 06:13 08:21 (G_III_02) 18:11 25	06:02 20:05 20:54 21:27	05:06 20:05 20:54 21:27	04:42 20:05 20:54 21:27
19	08:02 16:26 25	08:39 (G_III_06) 07:12 09:04 (G_III_03) 17:23 24	07:57 (G_III_02) 06:11 08:21 (G_III_02) 18:13 24	06:00 20:07 20:56 21:27	05:05 20:07 20:56 21:27	04:41 20:07 20:56 21:27
20	08:01 16:28 26	08:40 (G_III_06) 07:10 09:06 (G_III_03) 17:25 23	07:57 (G_III_02) 06:08 08:20 (G_III_02) 18:15 23	05:58 20:08 20:57 21:27	05:03 20:08 20:57 21:27	04:42 20:08 20:57 21:27
21	08:00 16:30 28	08:40 (G_III_06) 07:08 09:08 (G_III_03) 17:27 21	07:57 (G_III_02) 06:06 08:18 (G_III_02) 18:17 21	05:56 20:10 20:59 21:27	05:02 20:10 20:59 21:27	04:42 20:10 20:59 21:27
22	07:59 16:31 28	08:41 (G_III_06) 07:06 09:09 (G_III_03) 17:28 20	07:58 (G_III_02) 06:04 08:18 (G_III_02) 18:18 20	05:53 20:12 21:00 21:28	05:00 20:12 21:00 21:28	04:42 20:12 21:00 21:28
23	07:57 16:33 29	08:40 (G_III_06) 07:04 09:09 (G_III_03) 17:30 17	07:59 (G_III_02) 06:01 08:16 (G_III_02) 18:20 17	05:51 20:13 21:02 21:28	04:59 20:13 21:02 21:28	04:43 20:13 21:02 21:28
24	07:56 16:35 30	08:41 (G_III_06) 07:02 09:11 (G_III_03) 17:32 14	08:01 (G_III_02) 05:59 08:15 (G_III_02) 18:22 14	05:49 20:15 21:03 21:28	04:58 20:15 21:03 21:28	04:43 20:15 21:03 21:28
25	07:55 16:37 30	08:41 (G_III_06) 07:00 09:11 (G_III_03) 17:34 7	08:04 (G_III_02) 05:57 08:11 (G_III_02) 18:24 7	05:47 20:17 21:04 21:28	04:57 20:17 21:04 21:28	04:43 20:17 21:04 21:28
26	07:54 16:38 30	08:42 (G_III_06) 06:58 09:12 (G_III_03) 17:36 30	05:54 18:25 20:18 21:28	05:45 20:18 21:06 21:28	04:56 20:18 21:06 21:28	04:44 20:18 21:06 21:28
27	07:52 16:40 30	08:42 (G_III_03) 06:56 09:12 (G_III_03) 17:38 30	05:52 18:27 20:20 21:28	05:43 20:20 21:07 21:28	04:54 20:20 21:07 21:28	04:44 20:20 21:07 21:28
28	07:51 16:42 32	08:42 (G_III_03) 06:53 09:14 (G_III_03) 17:39 32	05:50 18:29 20:22 21:28	05:41 20:22 21:08 21:28	04:53 20:22 21:08 21:28	04:45 20:22 21:08 21:28
29	07:50 16:44 32	08:42 (G_III_03) 06:47 09:14 (G_III_03) 17:39 32	06:47 19:31 20:24 21:28	05:39 20:24 21:10 21:28	04:52 20:24 21:10 21:28	04:45 20:24 21:10 21:28
30	07:48 16:46 32	08:43 (G_III_03) 06:45 09:15 (G_III_03) 17:40 32	06:45 19:32 20:25 21:27	05:37 20:25 21:11 21:27	04:51 20:25 21:11 21:27	04:46 20:25 21:11 21:27
31	07:47 16:47 32	08:42 (G_III_03) 06:43 09:14 (G_III_03) 17:41 32	06:43 19:34 20:27 21:27	05:36 20:27 21:12 21:27	04:50 20:27 21:12 21:27	04:46 20:27 21:12 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	802	720	221			

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 34 - Friedland, Günthersdorf 6

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

	Jul	August	September	Okt	November	Dezember	
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:48 (G_III_01) 16:36	07:30 (G_III_04) 15:56	07:48 08:22 (G_III_06)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	07:47 (G_III_01) 16:35	07:30 (G_III_04) 15:55	07:50 08:24 (G_III_06)
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:46 (G_III_01) 16:33	07:31 (G_III_04) 15:54	07:51 08:26 (G_III_06)
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:45 (G_III_01) 16:31	07:32 (G_III_04) 15:54	07:52 08:28 (G_III_06)
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	07:45 (G_III_01) 16:29	07:33 (G_III_04) 15:53	07:54 08:28 (G_III_06)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:44 (G_III_01) 16:27	07:35 (G_III_04) 15:53	07:55 08:28 (G_III_06)
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:44 (G_III_01) 16:26	07:35 (G_III_04) 15:52	07:56 08:29 (G_III_06)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	07:44 (G_III_01) 16:24	07:35 (G_III_04) 15:52	07:57 08:29 (G_III_06)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:45 (G_III_01) 16:22	07:35 (G_III_04) 15:52	07:59 08:30 (G_III_06)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:45 (G_III_01) 16:21	07:35 (G_III_04) 15:52	08:00 08:31 (G_III_06)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:47 (G_III_01) 16:19	07:35 (G_III_04) 15:51	08:01 08:32 (G_III_06)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:50 (G_III_01) 16:18	07:35 (G_III_04) 15:51	08:02 08:33 (G_III_06)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:56 (G_III_01) 16:16	07:35 (G_III_04) 15:51	08:03 08:34 (G_III_06)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	07:56 (G_III_01) 16:15	07:35 (G_III_04) 15:51	08:04 08:35 (G_III_06)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	07:56 (G_III_01) 16:13	07:35 (G_III_04) 15:51	08:05 08:36 (G_III_06)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:56 (G_III_01) 16:12	07:35 (G_III_04) 15:51	08:06 08:37 (G_III_06)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	08:34 (G_III_02) 16:10	07:35 (G_III_04) 15:52	08:06 08:38 (G_III_06)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	08:31 (G_III_02) 16:09	07:35 (G_III_04) 15:52	08:07 08:39 (G_III_06)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	08:30 (G_III_02) 16:08	07:35 (G_III_04) 15:52	08:08 08:40 (G_III_06)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	08:29 (G_III_02) 16:06	07:35 (G_III_04) 15:52	08:09 08:41 (G_III_06)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	08:28 (G_III_02) 16:05	07:35 (G_III_04) 15:53	08:09 08:42 (G_III_06)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	08:26 (G_III_02) 16:04	07:35 (G_III_04) 15:53	08:10 08:43 (G_III_06)
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	08:26 (G_III_02) 16:03	07:35 (G_III_04) 15:54	08:10 08:44 (G_III_06)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	08:26 (G_III_02) 16:02	07:35 (G_III_04) 15:54	08:11 08:45 (G_III_06)
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 16:50	07:26 (G_III_02) 16:01	07:35 (G_III_04) 15:55	08:11 08:46 (G_III_06)
26	05:14 21:04	06:03 20:06	06:54 18:55	07:46 16:48	07:26 (G_III_02) 16:00	07:35 (G_III_04) 15:56	08:11 08:47 (G_III_06)
27	05:16 21:03	06:05 20:04	06:56 18:52	07:48 16:46	07:26 (G_III_02) 15:59	07:35 (G_III_04) 15:56	08:12 08:48 (G_III_06)
28	05:17 21:01	06:07 20:02	06:58 18:50	07:50 16:44	07:27 (G_III_02) 15:58	07:35 (G_III_04) 15:57	08:12 08:49 (G_III_06)
29	05:19 21:00	06:08 19:59	06:59 18:48	07:52 16:42	07:27 (G_III_02) 15:57	07:35 (G_III_04) 15:58	08:12 08:50 (G_III_06)
30	05:20 20:58	06:10 19:57	07:01 18:45	07:54 16:40	08:00 (G_III_01) 15:56	07:35 (G_III_04) 15:59	08:12 08:51 (G_III_06)
31	05:22 20:57	06:12 19:55		07:56 16:38	08:03 (G_III_01) 15:55	07:35 (G_III_04) 16:00	08:12 08:52 (G_III_06)
Sonnenscheinstunden	503	454	381	331	266	243	
astr.max.mögl.Beschattung			20	560	909	782	

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 35 - Friedland, Günthersdorf 5

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	08:12 16:01 25	08:47 (G_III_06) 09:56 (G_III_05) 16:49	07:45 09:23 (G_III_03) 17:41	06:51 09:23 (G_III_03) 17:41	07:18 (G_III_01) 07:33 (G_III_01) 19:36	05:35 20:27 21:13
2	08:12 16:02 28	08:45 (G_III_06) 09:56 (G_III_05) 16:51	07:43 09:23 (G_III_03) 17:43	06:49 09:23 (G_III_03) 17:43	07:16 (G_III_01) 07:34 (G_III_01) 19:37	05:33 20:29 21:14
3	08:12 16:03 27	08:45 (G_III_06) 09:56 (G_III_05) 16:53	07:42 09:22 (G_III_03) 17:45	06:47 09:22 (G_III_03) 17:45	07:15 (G_III_01) 07:34 (G_III_01) 19:39	05:31 20:30 21:15
4	08:12 16:05 28	08:45 (G_III_06) 09:56 (G_III_05) 16:55	07:40 09:21 (G_III_03) 17:47	06:45 09:21 (G_III_03) 17:47	07:14 (G_III_01) 07:35 (G_III_01) 19:41	05:29 20:32 21:16
5	08:11 16:06 27	08:44 (G_III_06) 09:55 (G_III_05) 16:57	07:39 09:20 (G_III_03) 17:49	06:42 09:20 (G_III_03) 17:49	07:14 (G_III_01) 07:35 (G_III_01) 19:43	05:28 20:34 21:17
6	08:11 16:07 27	08:45 (G_III_06) 09:55 (G_III_05) 16:59	07:37 09:19 (G_III_03) 17:50	06:40 09:19 (G_III_03) 17:50	07:13 (G_III_01) 07:34 (G_III_01) 19:44	05:26 20:35 21:18
7	08:11 16:08 26	08:44 (G_III_06) 09:54 (G_III_05) 17:01	07:35 09:18 (G_III_03) 17:52	06:38 09:18 (G_III_03) 17:52	07:13 (G_III_01) 07:34 (G_III_01) 19:46	05:24 20:37 21:19
8	08:10 16:10 23	08:45 (G_III_06) 09:53 (G_III_05) 17:02	07:33 09:16 (G_III_03) 17:54	06:36 09:16 (G_III_03) 17:54	07:14 (G_III_01) 07:34 (G_III_01) 19:48	05:22 20:39 21:20
9	08:10 16:11 21	08:44 (G_III_06) 09:05 (G_III_03) 17:04	07:32 09:11 (G_III_03) 17:56	06:33 09:11 (G_III_03) 17:56	07:15 (G_III_01) 07:33 (G_III_01) 19:49	05:20 20:40 21:21
10	08:09 16:12 23	08:44 (G_III_06) 09:07 (G_III_03) 17:06	07:30 08:27 (G_III_02) 17:57	06:31 08:27 (G_III_02) 17:57	07:15 (G_III_01) 07:31 (G_III_01) 19:51	05:19 20:42 21:22
11	08:09 16:14 25	08:44 (G_III_06) 09:09 (G_III_03) 17:08	07:28 08:27 (G_III_02) 17:59	06:29 08:27 (G_III_02) 17:59	07:16 (G_III_01) 07:30 (G_III_01) 19:53	05:17 20:43 21:23
12	08:08 16:15 27	08:44 (G_III_06) 09:11 (G_III_03) 17:10	07:26 08:27 (G_III_02) 18:01	06:27 08:27 (G_III_02) 18:01	07:19 (G_III_01) 19:55	05:15 20:45 21:23
13	08:07 16:17 29	08:44 (G_III_06) 09:13 (G_III_03) 17:12	07:24 08:28 (G_III_02) 18:03	06:24 08:28 (G_III_02) 18:03	06:13 19:56	05:14 20:47 21:24
14	08:07 16:18 29	08:45 (G_III_06) 09:14 (G_III_03) 17:14	07:22 08:03 (G_III_02) 18:04	06:22 08:03 (G_III_02) 18:04	06:11 19:58	05:12 20:48 21:25
15	08:06 16:20 30	08:45 (G_III_06) 09:15 (G_III_03) 17:15	07:20 08:28 (G_III_02) 18:06	06:20 08:28 (G_III_02) 18:06	06:09 20:00	05:10 20:50 21:25
16	08:05 16:21 31	08:45 (G_III_06) 09:16 (G_III_03) 17:17	07:18 08:27 (G_III_02) 18:08	06:17 08:27 (G_III_02) 18:08	06:06 20:01	05:09 20:51 21:26
17	08:04 16:23 32	08:45 (G_III_06) 09:17 (G_III_03) 17:19	07:16 08:04 (G_III_02) 18:10	06:15 08:04 (G_III_02) 18:10	06:04 20:03	05:07 20:53 21:26
18	08:03 16:25 32	08:46 (G_III_06) 09:18 (G_III_03) 17:21	07:14 08:26 (G_III_02) 18:11	06:13 08:26 (G_III_02) 18:11	06:02 20:05	05:06 20:54 21:27
19	08:02 16:26 33	08:45 (G_III_06) 09:18 (G_III_03) 17:23	07:12 08:05 (G_III_02) 18:13	06:11 08:05 (G_III_02) 18:13	06:00 20:07	05:05 20:56 21:27
20	08:01 16:28 33	08:46 (G_III_06) 09:19 (G_III_03) 17:25	07:10 08:07 (G_III_02) 18:15	06:08 08:07 (G_III_02) 18:15	05:58 20:08	05:03 20:57 21:27
21	08:00 16:30 33	08:47 (G_III_06) 09:20 (G_III_03) 17:27	07:08 08:22 (G_III_02) 18:17	06:06 08:22 (G_III_02) 18:17	05:56 20:10	05:02 20:59 21:27
22	07:59 16:31 33	08:48 (G_III_06) 09:21 (G_III_03) 17:28	07:06 08:10 (G_III_02) 18:18	06:04 08:10 (G_III_02) 18:18	05:53 20:12	05:00 21:00 21:28
23	07:57 16:33 33	08:48 (G_III_06) 09:21 (G_III_03) 17:30	07:04 09:21 (G_III_03) 17:30	06:01 18:20	05:51 20:13	04:59 21:02 21:28
24	07:56 16:35 33	08:49 (G_III_06) 09:22 (G_III_03) 17:32	07:02 09:22 (G_III_03) 17:32	05:59 18:22	05:49 20:15	04:58 21:03 21:28
25	07:55 16:37 32	08:50 (G_III_03) 09:22 (G_III_03) 17:34	07:00 17:34	05:57 18:24	05:47 20:17	04:57 21:04 21:28
26	07:54 16:38 32	08:51 (G_III_03) 09:23 (G_III_03) 17:36	06:58 17:36	05:54 18:25	05:45 20:18	04:56 21:06 21:28
27	07:52 16:40 33	08:50 (G_III_03) 09:23 (G_III_03) 17:38	06:56 17:38	05:52 18:27	05:43 20:20	04:54 21:07 21:28
28	07:51 16:42 32	08:51 (G_III_03) 09:23 (G_III_03) 17:39	06:53 17:39	05:50 18:29	05:41 20:22	04:53 21:08 21:28
29	07:50 16:44 32	08:51 (G_III_03) 09:23 (G_III_03) 17:40	06:47 17:40	05:47 19:30	05:39 20:24	04:52 21:10 21:28
30	07:48 16:46 32	08:52 (G_III_03) 09:24 (G_III_03) 17:41	06:45 17:41	05:45 19:32	05:37 20:25	04:51 21:11 21:27
31	07:47 16:47 31	08:52 (G_III_03) 09:23 (G_III_03) 17:42	06:43 17:42	05:43 19:34	05:35 21:12	04:50 21:12 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	912	620	212			

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	Schattenende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 35 - Friedland, Günthersdorf 5
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

	Juli	August	September	Oktober		November		Dezember		
1	04:46	05:23	06:13	07:03	2	08:01 (G_III_01)	06:57	07:34 (G_III_02)	07:48	08:26 (G_III_06)
	21:27	20:55	19:53	18:43		08:03 (G_III_01)	16:36	22 07:56 (G_III_02)	15:56	25 08:51 (G_III_03)
2	04:47	05:25	06:15	07:04		07:56 (G_III_01)	06:59	07:35 (G_III_02)	07:50	08:27 (G_III_06)
	21:27	20:53	19:50	18:41	11	08:07 (G_III_01)	16:35	27 08:42 (G_III_03)	15:55	23 08:50 (G_III_03)
3	04:48	05:26	06:17	07:06		07:53 (G_III_01)	07:00	07:35 (G_III_04)	07:51	08:28 (G_III_06)
	21:26	20:52	19:48	18:38	15	08:08 (G_III_01)	16:33	34 08:46 (G_III_03)	15:54	21 08:49 (G_III_03)
4	04:49	05:28	06:18	07:08		07:52 (G_III_01)	07:02	07:35 (G_III_04)	07:52	08:29 (G_III_06)
	21:26	20:50	19:46	18:36	18	08:10 (G_III_01)	16:31	38 08:48 (G_III_03)	15:54	23 09:37 (G_III_05)
5	04:49	05:29	06:20	07:09		07:51 (G_III_01)	07:04	07:36 (G_III_04)	07:54	08:29 (G_III_06)
	21:26	20:48	19:44	18:34	19	08:10 (G_III_01)	16:29	40 08:50 (G_III_03)	15:53	25 09:39 (G_III_05)
6	04:50	05:31	06:21	07:11		07:49 (G_III_01)	07:06	07:37 (G_III_04)	07:55	08:31 (G_III_06)
	21:25	20:46	19:41	18:31	21	08:10 (G_III_01)	16:27	40 08:51 (G_III_03)	15:53	26 09:41 (G_III_05)
7	04:51	05:33	06:23	07:13		07:49 (G_III_01)	07:08	07:38 (G_III_04)	07:56	08:31 (G_III_06)
	21:24	20:45	19:39	18:29	21	08:10 (G_III_01)	16:26	40 08:52 (G_III_03)	15:52	27 09:42 (G_III_05)
8	04:52	05:34	06:25	07:14		07:49 (G_III_01)	07:09	07:38 (G_III_04)	07:57	08:32 (G_III_06)
	21:24	20:43	19:37	18:27	21	08:10 (G_III_01)	16:24	40 08:52 (G_III_03)	15:52	28 09:43 (G_III_05)
9	04:53	05:36	06:26	07:16		07:49 (G_III_01)	07:11	07:40 (G_III_04)	07:59	08:34 (G_III_06)
	21:23	20:41	19:34	18:25	21	08:10 (G_III_01)	16:22	38 08:53 (G_III_03)	15:52	27 09:45 (G_III_05)
10	04:54	05:37	06:28	07:18		07:48 (G_III_01)	07:13	08:23 (G_III_03)	08:00	08:35 (G_III_06)
	21:22	20:39	19:32	18:22	21	08:09 (G_III_01)	16:21	31 08:54 (G_III_03)	15:52	27 09:46 (G_III_05)
11	04:55	05:39	06:30	07:20		07:49 (G_III_01)	07:15	08:23 (G_III_03)	08:01	08:37 (G_III_06)
	21:22	20:37	19:30	18:20	19	08:08 (G_III_01)	16:19	31 08:54 (G_III_03)	15:51	25 09:46 (G_III_05)
12	04:56	05:41	06:31	07:21		07:50 (G_III_01)	07:17	08:23 (G_III_03)	08:02	08:38 (G_III_06)
	21:21	20:35	19:27	18:18	17	08:07 (G_III_01)	16:18	32 08:55 (G_III_03)	15:51	24 09:47 (G_III_05)
13	04:57	05:42	06:33	07:23		07:51 (G_III_01)	07:18	08:23 (G_III_03)	08:03	09:28 (G_III_05)
	21:20	20:33	19:25	18:16	15	08:06 (G_III_01)	16:16	32 08:55 (G_III_03)	15:51	20 09:48 (G_III_05)
14	04:58	05:44	06:35	07:25		07:53 (G_III_01)	07:20	08:23 (G_III_03)	08:04	09:28 (G_III_05)
	21:19	20:31	19:23	18:13	10	08:03 (G_III_01)	16:15	32 08:55 (G_III_03)	15:51	21 09:49 (G_III_05)
15	05:00	05:45	06:36	07:26			07:22	08:23 (G_III_03)	08:05	09:28 (G_III_05)
	21:18	20:29	19:20	18:11			16:13	33 08:56 (G_III_03)	15:51	21 09:49 (G_III_05)
16	05:01	05:47	06:38	07:28			07:24	08:24 (G_III_03)	08:06	09:29 (G_III_05)
	21:17	20:27	19:18	18:09			16:12	32 08:56 (G_III_03)	15:51	21 09:50 (G_III_05)
17	05:02	05:49	06:39	07:30			07:25	08:24 (G_III_03)	08:06	09:28 (G_III_05)
	21:16	20:25	19:16	18:07			16:10	32 08:56 (G_III_03)	15:52	22 09:50 (G_III_05)
18	05:03	05:50	06:41	07:32			07:27	08:23 (G_III_06)	08:07	09:29 (G_III_05)
	21:15	20:23	19:13	18:05			16:09	33 08:56 (G_III_03)	15:52	22 09:51 (G_III_05)
19	05:05	05:52	06:43	07:33			07:29	08:23 (G_III_06)	08:08	09:29 (G_III_05)
	21:14	20:21	19:11	18:03			16:08	33 08:56 (G_III_03)	15:52	23 09:52 (G_III_05)
20	05:06	05:54	06:44	07:35		08:41 (G_III_02)	07:31	08:23 (G_III_06)	08:09	09:29 (G_III_05)
	21:12	20:19	19:09	18:00	10	08:51 (G_III_02)	16:06	33 08:56 (G_III_03)	15:52	22 09:51 (G_III_05)
21	05:07	05:55	06:46	07:37		08:38 (G_III_02)	07:32	08:22 (G_III_06)	08:09	09:30 (G_III_05)
	21:11	20:17	19:06	17:58	16	08:54 (G_III_02)	16:05	33 08:55 (G_III_03)	15:53	22 09:52 (G_III_05)
22	05:09	05:57	06:48	07:39		08:36 (G_III_02)	07:34	08:22 (G_III_06)	08:10	09:31 (G_III_05)
	21:10	20:15	19:04	17:56	18	08:54 (G_III_02)	16:04	33 08:55 (G_III_03)	15:53	22 09:53 (G_III_05)
23	05:10	05:58	06:49	07:41		08:35 (G_III_02)	07:36	08:22 (G_III_06)	08:10	09:31 (G_III_05)
	21:09	20:13	19:02	17:54	20	08:55 (G_III_02)	16:03	33 08:55 (G_III_03)	15:54	22 09:53 (G_III_05)
24	05:11	06:00	06:51	07:42		08:34 (G_III_02)	07:37	08:23 (G_III_06)	08:11	09:31 (G_III_05)
	21:07	20:10	18:59	17:52	22	08:56 (G_III_02)	16:02	32 08:55 (G_III_03)	15:54	23 09:54 (G_III_05)
25	05:13	06:02	06:53	06:44		07:33 (G_III_02)	07:39	08:23 (G_III_06)	08:11	09:33 (G_III_05)
	21:06	20:08	18:57	16:50	24	07:57 (G_III_02)	16:01	32 08:55 (G_III_03)	15:55	22 09:55 (G_III_05)
26	05:14	06:03	06:54	06:46		07:33 (G_III_02)	07:40	08:23 (G_III_06)	08:11	09:33 (G_III_05)
	21:04	20:06	18:55	16:48	24	07:57 (G_III_02)	16:00	31 08:54 (G_III_03)	15:56	22 09:55 (G_III_05)
27	05:16	06:05	06:56	06:48		07:33 (G_III_02)	07:42	08:24 (G_III_06)	08:12	09:33 (G_III_05)
	21:03	20:04	18:52	16:46	24	07:57 (G_III_02)	15:59	30 08:54 (G_III_03)	15:56	22 09:55 (G_III_05)
28	05:17	06:07	06:58	06:50		07:32 (G_III_02)	07:44	08:25 (G_III_06)	08:12	09:34 (G_III_05)
	21:01	20:02	18:50	16:44	25	07:57 (G_III_02)	15:58	29 08:54 (G_III_03)	15:57	21 09:55 (G_III_05)
29	05:19	06:08	06:59	06:51		07:33 (G_III_02)	07:45	08:25 (G_III_06)	08:12	09:35 (G_III_05)
	21:00	19:59	18:48	16:42	24	07:57 (G_III_02)	15:57	28 08:53 (G_III_03)	15:58	20 09:55 (G_III_05)
30	05:20	06:10	07:01	06:53		07:33 (G_III_02)	07:47	08:26 (G_III_06)	08:12	09:35 (G_III_05)
	20:58	19:57	18:45	16:40	24	07:57 (G_III_02)	15:56	26 08:52 (G_III_03)	15:59	21 09:56 (G_III_05)
31	05:22	06:12		06:55		07:33 (G_III_02)			08:12	08:48 (G_III_06)
	20:57	19:55		16:38	24	07:57 (G_III_02)			16:00	22 09:56 (G_III_05)
Sonnenscheinstunden	503	454	381	331	486	266	980	712		
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)	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM) Schattenanfang	(WEA mit erstem Schatten)	Zeitpunkt (SS:MM) Schattende	(WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 36 - Friedland, Günthersdorf 4
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	08:12		08:48 (G_III_06)	07:45		08:12 (G_III_04)	06:51		07:20 (G_III_01)	06:40	05:35	04:50
	16:01	33	09:58 (G_III_05)	16:49	39	09:29 (G_III_03)	17:41	21	07:41 (G_III_01)	19:36	20:27	21:13
2	08:12		08:47 (G_III_06)	07:43		08:12 (G_III_04)	06:49		07:20 (G_III_01)	06:38	05:33	04:49
	16:02	29	09:16 (G_III_03)	16:51	38	09:29 (G_III_03)	17:43	21	07:41 (G_III_01)	19:37	20:29	21:14
3	08:12		08:48 (G_III_06)	07:42		08:11 (G_III_04)	06:47		07:19 (G_III_01)	06:36	05:31	04:48
	16:03	29	09:17 (G_III_03)	16:53	36	09:27 (G_III_03)	17:45	22	07:41 (G_III_01)	19:39	20:30	21:15
4	08:12		08:48 (G_III_06)	07:40		08:10 (G_III_04)	06:45		07:19 (G_III_01)	06:33	05:29	04:47
	16:05	31	09:19 (G_III_03)	16:55	35	09:25 (G_III_03)	17:47	22	07:41 (G_III_01)	19:41	20:32	21:16
5	08:11		08:48 (G_III_06)	07:39		08:10 (G_III_04)	06:42		07:19 (G_III_01)	06:31	05:28	04:46
	16:06	31	09:19 (G_III_03)	16:57	29	09:21 (G_III_03)	17:49	21	07:40 (G_III_01)	19:43	20:34	21:17
6	08:11		08:48 (G_III_06)	07:37		08:10 (G_III_04)	06:40		07:19 (G_III_01)	06:29	05:26	04:46
	16:07	33	09:21 (G_III_03)	16:59	23	08:33 (G_III_02)	17:50	20	07:39 (G_III_01)	19:44	20:35	21:18
7	08:11		08:48 (G_III_06)	07:35		08:11 (G_III_02)	06:38		07:20 (G_III_01)	06:27	05:24	04:45
	16:08	33	09:21 (G_III_03)	17:00	23	08:34 (G_III_02)	17:52	18	07:38 (G_III_01)	19:46	20:37	21:19
8	08:10		08:49 (G_III_06)	07:33		08:10 (G_III_02)	06:36		07:21 (G_III_01)	06:24	05:22	04:45
	16:10	34	09:23 (G_III_03)	17:02	25	08:35 (G_III_02)	17:54	16	07:37 (G_III_01)	19:48	20:39	21:20
9	08:10		08:49 (G_III_06)	07:32		08:10 (G_III_02)	06:33		07:23 (G_III_01)	06:22	05:20	04:44
	16:11	35	09:24 (G_III_03)	17:04	25	08:35 (G_III_02)	17:56	12	07:35 (G_III_01)	19:49	20:40	21:21
10	08:09		08:49 (G_III_06)	07:30		08:10 (G_III_02)	06:31		07:25 (G_III_01)	06:20	05:19	04:44
	16:12	35	09:24 (G_III_03)	17:06	25	08:35 (G_III_02)	17:57	6	07:31 (G_III_01)	19:51	20:42	21:22
11	08:09		08:49 (G_III_06)	07:28		08:10 (G_III_02)	06:29			06:17	05:17	04:43
	16:14	36	09:25 (G_III_03)	17:08	25	08:35 (G_III_02)	17:59			19:53	20:43	21:23
12	08:08		08:50 (G_III_06)	07:26		08:10 (G_III_02)	06:27			06:15	05:15	04:43
	16:15	37	09:27 (G_III_03)	17:10	25	08:35 (G_III_02)	18:01			19:55	20:45	21:23
13	08:07		08:50 (G_III_06)	07:24		08:10 (G_III_02)	06:24			06:13	05:14	04:43
	16:17	37	09:27 (G_III_03)	17:12	25	08:35 (G_III_02)	18:03			19:56	20:47	21:24
14	08:06		08:51 (G_III_06)	07:22		08:11 (G_III_02)	06:22			06:11	05:12	04:42
	16:18	37	09:28 (G_III_03)	17:14	23	08:34 (G_III_02)	18:04			19:58	20:48	21:25
15	08:06		08:51 (G_III_06)	07:20		08:11 (G_III_02)	06:20			06:09	05:10	04:42
	16:20	38	09:29 (G_III_03)	17:15	23	08:34 (G_III_02)	18:06			20:00	20:50	21:25
16	08:05		08:52 (G_III_06)	07:18		08:12 (G_III_02)	06:17			06:06	05:09	04:42
	16:21	37	09:29 (G_III_03)	17:17	21	08:33 (G_III_02)	18:08			20:01	20:51	21:26
17	08:04		08:52 (G_III_06)	07:16		08:13 (G_III_02)	06:15			06:04	05:07	04:42
	16:23	38	09:30 (G_III_03)	17:19	19	08:32 (G_III_02)	18:10			20:03	20:53	21:26
18	08:03		08:53 (G_III_06)	07:14		08:15 (G_III_02)	06:13			06:02	05:06	04:42
	16:25	38	09:31 (G_III_03)	17:21	15	08:30 (G_III_02)	18:11			20:05	20:54	21:27
19	08:02		08:53 (G_III_06)	07:12		08:18 (G_III_02)	06:11			06:00	05:05	04:42
	16:26	37	09:30 (G_III_03)	17:23	9	08:27 (G_III_02)	18:13			20:07	20:56	21:27
20	08:01		08:54 (G_III_06)	07:10			06:08			05:58	05:03	04:42
	16:28	37	09:31 (G_III_03)	17:25			18:15			20:08	20:57	21:27
21	08:00		08:55 (G_III_06)	07:08			06:06			05:56	05:02	04:42
	16:30	37	09:32 (G_III_03)	17:27			18:17			20:10	20:59	21:27
22	07:59		08:56 (G_III_06)	07:06			06:04			05:53	05:00	04:42
	16:31	36	09:32 (G_III_03)	17:28			18:18			20:12	21:00	21:28
23	07:57		08:57 (G_III_06)	07:04			06:01			05:51	04:59	04:43
	16:33	35	09:32 (G_III_03)	17:30			18:20			20:13	21:02	21:28
24	07:56		08:59 (G_III_06)	07:02			05:59			05:49	04:58	04:43
	16:35	34	09:33 (G_III_03)	17:32			18:22			20:15	21:03	21:28
25	07:55		09:00 (G_III_03)	07:00		07:27 (G_III_01)	05:57			05:47	04:57	04:43
	16:37	32	09:32 (G_III_03)	17:34	9	07:36 (G_III_01)	18:24			20:17	21:04	21:28
26	07:54		09:01 (G_III_03)	06:58		07:23 (G_III_01)	05:54			05:45	04:56	04:44
	16:38	31	09:32 (G_III_03)	17:36	14	07:37 (G_III_01)	18:25			20:18	21:06	21:28
27	07:52		09:01 (G_III_03)	06:56		07:22 (G_III_01)	05:52			05:43	04:54	04:44
	16:40	31	09:32 (G_III_03)	17:38	17	07:39 (G_III_01)	18:27			20:20	21:07	21:28
28	07:51		09:02 (G_III_03)	06:53		07:21 (G_III_01)	05:50			05:41	04:53	04:45
	16:42	30	09:32 (G_III_03)	17:39	19	07:40 (G_III_01)	18:29			20:22	21:08	21:28
29	07:50		09:03 (G_III_03)				06:47			05:39	04:52	04:45
	16:44	28	09:31 (G_III_03)				19:30			20:24	21:10	21:28
30	07:48		08:15 (G_III_04)				06:45			05:37	04:51	04:46
	16:46	37	09:32 (G_III_03)				19:32			20:25	21:11	21:27
31	07:47		08:13 (G_III_04)				06:43				04:50	
	16:47	39	09:31 (G_III_03)				19:34				21:12	
Sonnenscheinstunden	258			277			367			416	486	500
astr.max.mögl.Beschattung	1065			542			179					

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 Layout GIII_33 Schattenrezeptor: IO 36 - Friedland, Günthersdorf 4
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

	Juli	August	September	Oktober		November		Dezember			
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43		06:57 16:36	26	07:39 (G_III_02) 08:05 (G_III_02)	07:48 15:56	36	08:31 (G_III_06) 09:07 (G_III_03)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41		06:59 16:35	24	07:40 (G_III_02) 08:04 (G_III_02)	07:50 15:55	35	08:32 (G_III_06) 09:07 (G_III_03)
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38		07:00 16:33	24	07:40 (G_III_02) 08:04 (G_III_02)	07:51 15:54	35	08:33 (G_III_06) 09:08 (G_III_03)
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	10	08:01 (G_III_01) 08:11 (G_III_01)	23	07:41 (G_III_02) 08:04 (G_III_02)	07:52 15:54	34	08:33 (G_III_06) 09:07 (G_III_03)
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	14	07:59 (G_III_01) 08:13 (G_III_01)	22	07:41 (G_III_02) 08:03 (G_III_02)	07:54 15:53	34	08:33 (G_III_06) 09:07 (G_III_03)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	18	07:56 (G_III_01) 08:14 (G_III_01)	30	07:41 (G_III_04) 08:53 (G_III_03)	07:55 15:53	32	08:35 (G_III_06) 09:07 (G_III_03)
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	20	07:55 (G_III_01) 08:15 (G_III_01)	35	07:41 (G_III_04) 08:56 (G_III_03)	07:56 15:52	31	08:35 (G_III_06) 09:06 (G_III_03)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	20	07:55 (G_III_01) 08:15 (G_III_01)	37	07:41 (G_III_04) 08:57 (G_III_03)	07:57 15:52	31	08:35 (G_III_06) 09:06 (G_III_03)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	22	07:54 (G_III_01) 08:16 (G_III_01)	38	07:42 (G_III_04) 08:59 (G_III_03)	07:59 15:52	30	08:37 (G_III_06) 09:07 (G_III_03)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	22	07:53 (G_III_01) 08:15 (G_III_01)	38	07:43 (G_III_04) 09:00 (G_III_03)	08:00 15:52	29	08:37 (G_III_06) 09:06 (G_III_03)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	22	07:53 (G_III_01) 08:15 (G_III_01)	39	07:44 (G_III_04) 09:02 (G_III_03)	08:01 15:51	33	08:38 (G_III_06) 09:48 (G_III_05)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	21	07:53 (G_III_01) 08:14 (G_III_01)	37	07:46 (G_III_04) 09:03 (G_III_03)	08:02 15:51	35	08:38 (G_III_06) 09:50 (G_III_05)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	20	07:54 (G_III_01) 08:14 (G_III_01)	29	08:34 (G_III_03) 09:03 (G_III_03)	08:03 15:51	36	08:39 (G_III_06) 09:51 (G_III_05)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	18	07:55 (G_III_01) 08:13 (G_III_01)	30	08:34 (G_III_03) 09:04 (G_III_03)	08:04 15:51	36	08:40 (G_III_06) 09:52 (G_III_05)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	16	07:55 (G_III_01) 08:11 (G_III_01)	31	08:34 (G_III_03) 09:05 (G_III_03)	08:05 15:51	36	08:41 (G_III_06) 09:53 (G_III_05)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	13	07:56 (G_III_01) 08:09 (G_III_01)	31	08:34 (G_III_03) 09:05 (G_III_03)	08:06 15:51	36	08:42 (G_III_06) 09:54 (G_III_05)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	7	07:59 (G_III_01) 08:06 (G_III_01)	32	08:34 (G_III_03) 09:06 (G_III_03)	08:06 15:52	33	08:41 (G_III_06) 09:54 (G_III_05)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05		07:27 16:09	33	08:33 (G_III_06) 09:06 (G_III_03)	08:07 15:52	33	08:42 (G_III_06) 09:55 (G_III_05)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03		07:29 16:08	35	08:32 (G_III_06) 09:07 (G_III_03)	08:08 15:52	31	08:43 (G_III_06) 09:56 (G_III_05)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00		07:31 16:06	36	08:31 (G_III_06) 09:07 (G_III_03)	08:09 15:52	28	08:43 (G_III_06) 09:56 (G_III_05)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58		07:32 16:05	37	08:30 (G_III_06) 09:07 (G_III_03)	08:09 15:53	28	08:44 (G_III_06) 09:57 (G_III_05)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56		07:34 16:04	37	08:30 (G_III_06) 09:07 (G_III_03)	08:10 15:53	28	08:45 (G_III_06) 09:58 (G_III_05)
23	05:10 21:09	05:58 20:13	06:49 19:02	07:41 17:54	12	08:46 (G_III_02) 08:58 (G_III_02)	37	08:30 (G_III_06) 09:07 (G_III_03)	08:10 15:54	27	08:45 (G_III_06) 09:58 (G_III_05)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	16	08:44 (G_III_02) 09:00 (G_III_02)	38	08:30 (G_III_06) 09:08 (G_III_03)	08:11 15:54	30	08:45 (G_III_06) 09:58 (G_III_05)
25	05:13 21:06	06:02 20:08	06:53 18:57	06:44 16:50	19	07:42 (G_III_02) 08:01 (G_III_02)	38	08:30 (G_III_06) 09:08 (G_III_03)	08:11 15:55	32	08:46 (G_III_06) 09:59 (G_III_05)
26	05:14 21:04	06:03 20:06	06:54 18:55	06:46 16:48	21	07:41 (G_III_02) 08:02 (G_III_02)	37	08:30 (G_III_06) 09:07 (G_III_03)	08:11 15:56	33	08:46 (G_III_06) 09:59 (G_III_05)
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 16:46	22	07:41 (G_III_02) 08:03 (G_III_02)	38	08:30 (G_III_06) 09:08 (G_III_03)	08:12 15:56	35	08:46 (G_III_06) 09:59 (G_III_05)
28	05:17 21:01	06:07 20:02	06:58 18:50	06:50 16:44	24	07:40 (G_III_02) 08:04 (G_III_02)	37	08:31 (G_III_06) 09:08 (G_III_03)	08:12 15:57	35	08:47 (G_III_06) 09:59 (G_III_05)
29	05:19 21:00	06:08 19:59	06:59 18:48	06:51 16:42	24	07:40 (G_III_02) 08:04 (G_III_02)	37	08:30 (G_III_06) 09:07 (G_III_03)	08:12 15:58	35	08:47 (G_III_06) 09:59 (G_III_05)
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40	26	07:39 (G_III_02) 08:05 (G_III_02)	37	08:31 (G_III_06) 09:08 (G_III_03)	08:12 15:59	36	08:47 (G_III_06) 09:59 (G_III_05)
31	05:22 20:57	06:12 19:55		06:55 16:38	26	07:39 (G_III_02) 08:05 (G_III_02)			08:12 16:00	36	08:47 (G_III_06) 09:59 (G_III_05)
Sonnenscheinstunden	503	454	381	331	433	266	1003	243	1019		
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)	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 Layout GIII_33 Schattenrezeptor: IO 37 - Friedland, Günthersdorf 3
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	08:12 16:01 34	08:49 (G_III_06) 07:45 09:23 (G_III_03) 16:49	08:13 (G_III_04) 06:51 09:31 (G_III_03) 17:41	07:23 (G_III_01) 06:40 07:44 (G_III_01) 19:36	05:35 20:27	04:50 21:13
2	08:12 16:02 34	08:49 (G_III_06) 07:43 09:23 (G_III_03) 16:51	08:13 (G_III_04) 06:49 09:30 (G_III_03) 17:43	07:22 (G_III_01) 06:38 07:44 (G_III_01) 19:37	05:33 20:29	04:49 21:14
3	08:12 16:03 35	08:49 (G_III_06) 07:42 09:24 (G_III_03) 16:53	08:13 (G_III_04) 06:47 09:26 (G_III_03) 17:45	07:22 (G_III_01) 06:36 07:43 (G_III_01) 19:39	05:31 20:30	04:48 21:15
4	08:12 16:05 35	08:50 (G_III_06) 07:40 09:25 (G_III_03) 16:55	08:12 (G_III_04) 06:45 08:35 (G_III_02) 17:47	07:22 (G_III_01) 06:33 07:43 (G_III_01) 19:41	05:29 20:32	04:47 21:16
5	08:11 16:06 35	08:50 (G_III_06) 07:39 09:25 (G_III_03) 16:57	08:12 (G_III_04) 06:42 08:36 (G_III_02) 17:49	07:23 (G_III_01) 06:31 07:42 (G_III_01) 19:43	05:28 20:34	04:46 21:17
6	08:11 16:07 36	08:51 (G_III_06) 07:37 09:27 (G_III_03) 16:59	08:12 (G_III_04) 06:40 08:37 (G_III_02) 17:50	07:22 (G_III_01) 06:29 07:41 (G_III_01) 19:44	05:26 20:35	04:46 21:18
7	08:11 16:08 37	08:50 (G_III_06) 07:35 09:27 (G_III_03) 17:00	08:13 (G_III_02) 06:38 08:38 (G_III_02) 17:52	07:24 (G_III_01) 06:27 07:39 (G_III_01) 19:46	05:24 20:37	04:45 21:19
8	08:10 16:10 37	08:51 (G_III_06) 07:33 09:28 (G_III_03) 17:02	08:13 (G_III_02) 06:36 08:38 (G_III_02) 17:54	07:26 (G_III_01) 06:24 07:38 (G_III_01) 19:48	05:22 20:39	04:45 21:20
9	08:10 16:11 38	08:51 (G_III_06) 07:32 09:29 (G_III_03) 17:04	08:13 (G_III_02) 06:33 08:38 (G_III_02) 17:56	07:29 (G_III_01) 06:22 07:34 (G_III_01) 19:49	05:20 20:40	04:44 21:21
10	08:09 16:12 38	08:51 (G_III_06) 07:30 09:29 (G_III_03) 17:06	08:13 (G_III_02) 06:31 08:38 (G_III_02) 17:57	06:20 19:51	05:19 20:42	04:44 21:22
11	08:09 16:14 39	08:51 (G_III_06) 07:28 09:30 (G_III_03) 17:08	08:13 (G_III_02) 06:29 08:38 (G_III_02) 17:59	06:17 19:53	05:17 20:43	04:43 21:23
12	08:08 16:15 38	08:53 (G_III_06) 07:26 09:31 (G_III_03) 17:10	08:13 (G_III_02) 06:27 08:38 (G_III_02) 18:01	06:15 19:55	05:15 20:45	04:43 21:23
13	08:07 16:17 39	08:53 (G_III_06) 07:24 09:32 (G_III_03) 17:12	08:14 (G_III_02) 06:24 08:37 (G_III_02) 18:03	06:13 19:56	05:14 20:47	04:43 21:24
14	08:07 16:18 40	08:53 (G_III_06) 07:22 09:33 (G_III_03) 17:14	08:15 (G_III_02) 06:22 08:36 (G_III_02) 18:04	06:11 19:58	05:12 20:48	04:42 21:25
15	08:06 16:20 39	08:54 (G_III_06) 07:20 09:33 (G_III_03) 17:15	08:16 (G_III_02) 06:20 08:35 (G_III_02) 18:06	06:09 20:00	05:10 20:50	04:42 21:25
16	08:05 16:21 39	08:55 (G_III_06) 07:18 09:34 (G_III_03) 17:17	08:17 (G_III_02) 06:17 08:34 (G_III_02) 18:08	06:06 20:01	05:09 20:51	04:42 21:26
17	08:04 16:23 39	08:55 (G_III_06) 07:16 09:34 (G_III_03) 17:19	08:19 (G_III_02) 06:15 08:32 (G_III_02) 18:10	06:04 20:03	05:07 20:53	04:42 21:26
18	08:03 16:25 39	08:56 (G_III_06) 07:14 09:35 (G_III_03) 17:21	08:22 (G_III_02) 06:13 08:29 (G_III_02) 18:11	06:02 20:05	05:06 20:54	04:42 21:27
19	08:02 16:26 38	08:56 (G_III_06) 07:12 09:34 (G_III_03) 17:23	06:11 18:13	06:00 20:07	05:05 20:56	04:42 21:27
20	08:01 16:28 37	08:58 (G_III_06) 07:10 09:35 (G_III_03) 17:25	06:08 18:15	05:58 20:08	05:03 20:57	04:42 21:27
21	08:00 16:30 36	08:59 (G_III_06) 07:08 09:35 (G_III_03) 17:27	06:06 18:17	05:56 20:10	05:02 20:59	04:42 21:27
22	07:59 16:31 35	09:01 (G_III_06) 07:06 09:36 (G_III_03) 17:28	06:04 18:18	05:53 20:12	05:00 21:00	04:42 21:28
23	07:57 16:33 33	09:02 (G_III_06) 07:04 09:35 (G_III_03) 17:30	06:01 18:20	05:51 20:13	04:59 21:02	04:43 21:28
24	07:56 16:35 31	09:05 (G_III_03) 07:02 09:36 (G_III_03) 17:32	07:29 (G_III_01) 05:59 07:39 (G_III_01) 18:22	05:49 20:15	04:58 21:03	04:43 21:28
25	07:55 16:37 30	09:05 (G_III_03) 07:00 09:35 (G_III_03) 17:34	07:27 (G_III_01) 05:57 07:41 (G_III_01) 18:24	05:47 20:17	04:57 21:04	04:43 21:28
26	07:54 16:38 29	09:06 (G_III_03) 06:58 09:35 (G_III_03) 17:36	07:24 (G_III_01) 05:54 07:42 (G_III_01) 18:25	05:45 20:18	04:56 21:06	04:44 21:28
27	07:52 16:40 29	09:06 (G_III_03) 06:56 09:35 (G_III_03) 17:38	07:23 (G_III_01) 05:52 07:43 (G_III_01) 18:27	05:43 20:20	04:54 21:07	04:44 21:28
28	07:51 16:42 34	08:18 (G_III_04) 06:53 09:35 (G_III_03) 17:39	07:23 (G_III_01) 05:50 07:43 (G_III_01) 18:29	05:41 20:22	04:53 21:08	04:45 21:28
29	07:50 16:44 36	08:16 (G_III_04) 09:34 (G_III_03)	06:47 19:30	05:39 20:24	04:52 21:10	04:45 21:28
30	07:48 16:46 39	08:15 (G_III_04) 09:34 (G_III_03)	06:45 19:32	05:37 20:25	04:51 21:11	04:46 21:27
31	07:47 16:47 37	08:14 (G_III_04) 09:32 (G_III_03)	06:43 19:34		04:50 21:12	
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	1115	508	155			

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 Layout GIII_33 Schattenrezeptor: IO 37 - Friedland, Günthersdorf 3
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

	Juli	August	September	Oktober		November		Dezember			
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43		06:57 16:36	25	07:43 (G_III_02) 08:08 (G_III_02)	07:48 15:56	38	08:34 (G_III_06) 09:12 (G_III_03)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41		06:59 16:35	25	07:43 (G_III_02) 08:08 (G_III_02)	07:50 15:55	38	08:34 (G_III_06) 09:12 (G_III_03)
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38		07:00 16:33	25	07:43 (G_III_02) 08:08 (G_III_02)	07:51 15:54	38	08:35 (G_III_06) 09:13 (G_III_03)
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36		07:02 16:31	25	07:43 (G_III_02) 08:08 (G_III_02)	07:52 15:54	38	08:35 (G_III_06) 09:13 (G_III_03)
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	9	08:04 (G_III_01) 08:13 (G_III_01)	07:04 16:29	07:43 (G_III_04) 08:07 (G_III_02)	07:54 15:53	37	08:35 (G_III_06) 09:12 (G_III_03)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	15	08:00 (G_III_01) 08:15 (G_III_01)	07:06 16:27	07:43 (G_III_04) 08:07 (G_III_02)	07:55 15:53	36	08:37 (G_III_06) 09:13 (G_III_03)
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	17	07:59 (G_III_01) 08:16 (G_III_01)	07:08 16:26	07:43 (G_III_04) 08:06 (G_III_02)	07:56 15:52	35	08:37 (G_III_06) 09:12 (G_III_03)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	19	07:58 (G_III_01) 08:17 (G_III_01)	07:09 16:24	07:43 (G_III_04) 08:57 (G_III_03)	07:57 15:52	35	08:37 (G_III_06) 09:12 (G_III_03)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	21	07:57 (G_III_01) 08:18 (G_III_01)	07:11 16:22	07:43 (G_III_04) 09:00 (G_III_03)	07:59 15:52	34	08:39 (G_III_06) 09:13 (G_III_03)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	21	07:56 (G_III_01) 08:17 (G_III_01)	07:13 16:21	07:44 (G_III_04) 09:02 (G_III_03)	08:00 15:52	34	08:39 (G_III_06) 09:13 (G_III_03)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	21	07:56 (G_III_01) 08:17 (G_III_01)	07:15 16:19	07:45 (G_III_04) 09:03 (G_III_03)	08:01 15:51	34	08:39 (G_III_06) 09:13 (G_III_03)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	21	07:56 (G_III_01) 08:17 (G_III_01)	07:17 16:18	07:46 (G_III_04) 09:05 (G_III_03)	08:02 15:51	33	08:40 (G_III_06) 09:13 (G_III_03)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	21	07:56 (G_III_01) 08:17 (G_III_01)	07:18 16:16	07:48 (G_III_04) 09:06 (G_III_03)	08:03 15:51	32	08:41 (G_III_06) 09:13 (G_III_03)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	20	07:56 (G_III_01) 08:16 (G_III_01)	07:20 16:15	07:50 (G_III_04) 09:07 (G_III_03)	08:04 15:51	32	08:41 (G_III_06) 09:13 (G_III_03)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	19	07:56 (G_III_01) 08:15 (G_III_01)	07:22 16:13	08:39 (G_III_03) 09:08 (G_III_03)	08:05 15:51	31	08:42 (G_III_06) 09:13 (G_III_03)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	17	07:57 (G_III_01) 08:14 (G_III_01)	07:24 16:12	08:39 (G_III_03) 09:08 (G_III_03)	08:06 15:51	34	08:43 (G_III_06) 09:53 (G_III_05)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	14	07:58 (G_III_01) 08:12 (G_III_01)	07:25 16:10	08:38 (G_III_03) 09:09 (G_III_03)	08:06 15:52	35	08:43 (G_III_06) 09:53 (G_III_05)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	8	08:01 (G_III_01) 08:09 (G_III_01)	07:27 16:09	08:39 (G_III_03) 09:10 (G_III_03)	08:07 15:52	37	08:43 (G_III_06) 09:55 (G_III_05)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03			07:29 16:08	08:37 (G_III_06) 09:10 (G_III_03)	08:08 15:52	38	08:44 (G_III_06) 09:56 (G_III_05)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00			07:31 16:06	08:36 (G_III_06) 09:11 (G_III_03)	08:09 15:52	37	08:44 (G_III_06) 09:56 (G_III_05)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58			07:32 16:05	08:34 (G_III_06) 09:10 (G_III_03)	08:09 15:53	37	08:45 (G_III_06) 09:57 (G_III_05)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56			07:34 16:04	08:34 (G_III_06) 09:11 (G_III_03)	08:10 15:53	37	08:46 (G_III_06) 09:58 (G_III_05)
23	05:10 21:09	05:58 20:13	06:49 19:02	07:41 17:54			07:36 16:03	08:33 (G_III_06) 09:11 (G_III_03)	08:10 15:54	37	08:46 (G_III_06) 09:58 (G_III_05)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	8	08:51 (G_III_02) 08:59 (G_III_02)	07:37 16:02	08:33 (G_III_06) 09:12 (G_III_03)	08:11 15:54	38	08:46 (G_III_06) 09:58 (G_III_05)
25	05:13 21:06	06:02 20:08	06:53 18:57	06:44 16:50	14	07:48 (G_III_02) 08:02 (G_III_02)	07:39 16:01	08:33 (G_III_06) 09:12 (G_III_03)	08:11 15:55	38	08:47 (G_III_06) 09:59 (G_III_05)
26	05:14 21:04	06:03 20:06	06:54 18:55	06:46 16:48	18	07:46 (G_III_02) 08:04 (G_III_02)	07:40 16:00	08:33 (G_III_06) 09:12 (G_III_03)	08:11 15:56	35	08:48 (G_III_06) 09:58 (G_III_05)
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 16:46	20	07:45 (G_III_02) 08:05 (G_III_02)	07:42 15:59	08:33 (G_III_06) 09:12 (G_III_03)	08:12 15:56	35	08:48 (G_III_06) 09:58 (G_III_05)
28	05:17 21:01	06:07 20:02	06:58 18:50	06:50 16:44	22	07:44 (G_III_02) 08:06 (G_III_02)	07:44 15:58	08:33 (G_III_06) 09:13 (G_III_03)	08:12 15:57	31	08:48 (G_III_06) 09:19 (G_III_03)
29	05:19 21:00	06:08 19:59	06:59 18:48	06:51 16:42	24	07:43 (G_III_02) 08:07 (G_III_02)	07:45 15:57	08:33 (G_III_06) 09:12 (G_III_03)	08:12 15:58	31	08:48 (G_III_06) 09:19 (G_III_03)
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40	24	07:43 (G_III_02) 08:07 (G_III_02)	07:47 15:56	08:34 (G_III_06) 09:13 (G_III_03)	08:12 15:59	32	08:48 (G_III_06) 09:20 (G_III_03)
31	05:22 20:57	06:12 19:55		06:55 16:38	25	07:43 (G_III_02) 08:08 (G_III_02)			08:12 16:00	32	08:49 (G_III_06) 09:21 (G_III_03)
Sonnenscheinstunden	503	454	381	331	398	266	994	243	1089		
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)	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 Layout GIII_33 Schattenrezeptor: IO 38 - Friedland, Günthersdorf 2

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	08:12 16:01 37	08:52 (G_III_06) 07:45 09:29 (G_III_03) 16:49 31	08:15 (G_III_04) 06:51 09:30 (G_III_03) 17:41 22	07:25 (G_III_01) 06:40 07:47 (G_III_01) 19:36 20:27	05:35 20:27 21:13	04:50 21:13
2	08:12 16:02 38	08:51 (G_III_06) 07:43 09:29 (G_III_03) 16:51 24	08:15 (G_III_04) 06:49 08:39 (G_III_02) 17:43 22	07:25 (G_III_01) 06:38 07:47 (G_III_01) 19:37 20:29	05:33 20:29 21:14	04:49 21:14
3	08:12 16:03 38	08:52 (G_III_06) 07:42 09:30 (G_III_03) 16:53 25	08:15 (G_III_04) 06:47 08:40 (G_III_02) 17:45 21	07:25 (G_III_01) 06:36 07:46 (G_III_01) 19:39 20:30	05:31 20:30 21:15	04:48 21:15
4	08:12 16:05 38	08:53 (G_III_06) 07:40 09:31 (G_III_03) 16:55 25	08:15 (G_III_04) 06:45 08:40 (G_III_02) 17:47 20	07:25 (G_III_01) 06:33 07:45 (G_III_01) 19:41 20:32	05:29 20:32 21:16	04:47 21:16
5	08:11 16:06 40	08:52 (G_III_06) 07:39 09:32 (G_III_03) 16:57 25	08:15 (G_III_04) 06:42 08:40 (G_III_02) 17:49 18	07:26 (G_III_01) 06:31 07:44 (G_III_01) 19:43 20:34	05:28 20:34 21:17	04:46 21:17
6	08:11 16:07 40	08:53 (G_III_06) 07:37 09:33 (G_III_03) 16:59 26	08:15 (G_III_04) 06:40 08:41 (G_III_02) 17:50 15	07:27 (G_III_01) 06:29 07:42 (G_III_01) 19:44 20:35	05:26 20:35 21:18	04:46 21:18
7	08:11 16:08 40	08:53 (G_III_06) 07:35 09:33 (G_III_03) 17:00 26	08:16 (G_III_02) 06:38 08:42 (G_III_02) 17:52 11	07:29 (G_III_01) 06:27 07:40 (G_III_01) 19:46 20:37	05:24 20:37 21:19	04:45 21:19
8	08:10 16:10 40	08:54 (G_III_06) 07:33 09:34 (G_III_03) 17:02 26	08:16 (G_III_02) 06:36 08:42 (G_III_02) 17:54 26	06:24 19:48 20:39	05:22 20:39 21:20	04:45 21:20
9	08:10 16:11 41	08:54 (G_III_06) 07:32 09:35 (G_III_03) 17:04 25	08:16 (G_III_02) 06:33 08:41 (G_III_02) 17:56 25	06:22 19:49 20:40	05:20 20:40 21:21	04:44 21:21
10	08:09 16:12 41	08:54 (G_III_06) 07:30 09:35 (G_III_03) 17:06 24	08:17 (G_III_02) 06:31 08:41 (G_III_02) 17:57 24	06:20 19:51 20:42	05:19 20:42 21:22	04:44 21:22
11	08:09 16:14 40	08:55 (G_III_06) 07:28 09:35 (G_III_03) 17:08 24	08:17 (G_III_02) 06:29 08:41 (G_III_02) 17:59 24	06:17 19:53 20:43	05:17 20:43 21:23	04:43 21:23
12	08:08 16:15 41	08:56 (G_III_06) 07:26 09:37 (G_III_03) 17:10 22	08:18 (G_III_02) 06:27 08:40 (G_III_02) 18:01 22	06:15 19:55 20:45	05:15 20:45 21:23	04:43 21:23
13	08:07 16:17 41	08:56 (G_III_06) 07:24 09:37 (G_III_03) 17:12 20	08:19 (G_III_02) 06:24 08:39 (G_III_02) 18:03 20	06:13 19:56 20:47	05:14 20:47 21:24	04:43 21:24
14	08:06 16:18 41	08:57 (G_III_06) 07:22 09:38 (G_III_03) 17:14 18	08:20 (G_III_02) 06:22 08:38 (G_III_02) 18:04 18	06:11 19:58 20:48	05:12 20:48 21:25	04:42 21:25
15	08:06 16:20 40	08:58 (G_III_06) 07:20 09:38 (G_III_03) 17:15 16	08:21 (G_III_02) 06:20 08:37 (G_III_02) 18:06 16	06:09 20:00 20:50	05:10 20:50 21:25	04:42 21:25
16	08:05 16:21 40	08:58 (G_III_06) 07:18 09:38 (G_III_03) 17:17 10	08:24 (G_III_02) 06:17 08:34 (G_III_02) 18:08 10	06:06 20:01 20:51	05:09 20:51 21:26	04:42 21:26
17	08:04 16:23 40	08:59 (G_III_06) 07:16 09:39 (G_III_03) 17:19 18	06:15 18:10 06:13	06:04 20:03 20:53	05:07 20:53 21:26	04:42 21:26
18	08:03 16:25 39	09:00 (G_III_06) 07:14 09:39 (G_III_03) 17:21 17	06:13 18:11 06:11	06:02 20:05 20:54	05:06 20:54 21:27	04:42 21:27
19	08:02 16:26 38	09:01 (G_III_06) 07:12 09:39 (G_III_03) 17:23 20	06:11 18:13 06:08	06:00 20:07 20:56	05:05 20:56 21:27	04:42 21:27
20	08:01 16:28 37	09:02 (G_III_06) 07:10 09:39 (G_III_03) 17:25 21	06:08 18:15 06:06	05:58 20:08 20:57	05:03 20:57 21:27	04:42 21:27
21	08:00 16:30 36	09:04 (G_III_06) 07:08 09:40 (G_III_03) 17:27 22	06:06 18:17 06:04	05:56 20:10 20:59	05:02 20:59 21:27	04:42 21:27
22	07:59 16:31 32	09:08 (G_III_06) 07:06 09:40 (G_III_03) 17:28 5	07:34 (G_III_01) 06:04 07:39 (G_III_01) 18:18 5	05:53 20:12 21:00	05:00 21:00 21:28	04:42 21:28
23	07:57 16:33 30	09:09 (G_III_03) 07:04 09:39 (G_III_03) 17:30 13	07:30 (G_III_01) 06:01 07:43 (G_III_01) 18:20 13	05:51 20:13 21:02	04:59 21:02 21:28	04:43 21:28
24	07:56 16:35 29	09:10 (G_III_03) 07:02 09:39 (G_III_03) 17:32 16	07:29 (G_III_01) 05:59 07:45 (G_III_01) 18:22 16	05:49 20:15 21:03	04:58 21:03 21:28	04:43 21:28
25	07:55 16:37 29	09:10 (G_III_03) 07:00 09:39 (G_III_03) 17:34 18	07:28 (G_III_01) 05:57 07:46 (G_III_01) 18:24 18	05:47 20:17 21:04	04:57 21:04 21:28	04:43 21:28
26	07:54 16:38 28	09:11 (G_III_03) 06:58 09:39 (G_III_03) 17:36 20	07:26 (G_III_01) 05:54 07:46 (G_III_01) 18:25 20	05:45 20:18 21:06	04:56 21:06 21:28	04:44 21:28
27	07:52 16:40 35	08:19 (G_III_04) 06:56 09:38 (G_III_03) 17:38 21	07:25 (G_III_01) 05:52 07:46 (G_III_01) 18:27 21	05:43 20:20 21:07	04:54 21:07 21:28	04:44 21:28
28	07:51 16:42 35	08:18 (G_III_04) 06:53 09:37 (G_III_03) 17:39 22	07:25 (G_III_01) 05:50 07:47 (G_III_01) 18:29 22	05:41 20:22 21:08	04:53 21:08 21:28	04:45 21:28
29	07:50 16:44 38	08:16 (G_III_04) 09:36 (G_III_03)	06:47 19:30	05:39 20:24 21:10	04:52 21:10 21:28	04:45 21:28
30	07:48 16:46 37	08:16 (G_III_04) 09:35 (G_III_03)	06:45 19:32	05:37 20:25 21:11	04:51 21:11 21:27	04:46 21:27
31	07:47 16:47 36	08:15 (G_III_04) 09:33 (G_III_03)	06:43 19:34	04:50 21:12	04:50 21:12	04:46 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	1155	482	129			

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 38 - Friedland, Günthersdorf 2

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

	Juli	August	September	Oktober		November		Dezember	
1	04:46	05:23	06:13	07:03		06:57	07:46 (G_III_02)	07:48	08:37 (G_III_06)
	21:27	20:55	19:53	18:43		16:36	25 08:11 (G_III_02)	15:56	40 09:17 (G_III_03)
2	04:47	05:25	06:15	07:04		06:59	07:46 (G_III_02)	07:50	08:37 (G_III_06)
	21:27	20:53	19:50	18:41		16:35	25 08:11 (G_III_02)	15:55	41 09:18 (G_III_03)
3	04:48	05:26	06:17	07:06		07:00	07:46 (G_III_02)	07:51	08:38 (G_III_06)
	21:26	20:52	19:48	18:38		16:33	25 08:11 (G_III_02)	15:54	41 09:19 (G_III_03)
4	04:49	05:28	06:18	07:08		07:02	07:46 (G_III_02)	07:52	08:38 (G_III_06)
	21:26	20:50	19:46	18:36		16:31	25 08:11 (G_III_02)	15:54	40 09:18 (G_III_03)
5	04:49	05:29	06:20	07:09		07:04	07:46 (G_III_02)	07:54	08:38 (G_III_06)
	21:26	20:48	19:44	18:34		16:29	25 08:11 (G_III_02)	15:53	40 09:18 (G_III_03)
6	04:50	05:31	06:21	07:11	8 08:06 (G_III_01)	07:06	07:46 (G_III_04)	07:55	08:39 (G_III_06)
	21:25	20:46	19:41	18:31	8 08:14 (G_III_01)	16:27	25 08:11 (G_III_02)	15:53	40 09:19 (G_III_03)
7	04:51	05:33	06:23	07:13	8 08:04 (G_III_01)	07:08	07:46 (G_III_04)	07:56	08:39 (G_III_06)
	21:24	20:45	19:39	18:29	13 08:17 (G_III_01)	16:26	25 08:11 (G_III_02)	15:52	40 09:19 (G_III_03)
8	04:52	05:34	06:25	07:14	8 08:02 (G_III_01)	07:09	07:45 (G_III_04)	07:57	08:40 (G_III_06)
	21:24	20:43	19:37	18:27	17 08:19 (G_III_01)	16:24	24 08:09 (G_III_02)	15:52	38 09:18 (G_III_03)
9	04:53	05:36	06:26	07:16	8 08:01 (G_III_01)	07:11	07:45 (G_III_04)	07:59	08:41 (G_III_06)
	21:23	20:41	19:34	18:25	19 08:20 (G_III_01)	16:22	24 08:09 (G_III_02)	15:52	38 09:19 (G_III_03)
10	04:54	05:37	06:28	07:18	8 07:59 (G_III_01)	07:13	07:46 (G_III_04)	08:00	08:41 (G_III_06)
	21:22	20:39	19:32	18:22	20 08:19 (G_III_01)	16:21	31 09:01 (G_III_03)	15:52	38 09:19 (G_III_03)
11	04:55	05:39	06:30	07:20	8 07:59 (G_III_01)	07:15	07:46 (G_III_04)	08:01	08:42 (G_III_06)
	21:22	20:37	19:30	18:20	21 08:20 (G_III_01)	16:19	36 09:04 (G_III_03)	15:51	37 09:19 (G_III_03)
12	04:56	05:41	06:31	07:21	8 07:58 (G_III_01)	07:17	07:47 (G_III_04)	08:02	08:42 (G_III_06)
	21:21	20:35	19:27	18:18	22 08:20 (G_III_01)	16:18	38 09:06 (G_III_03)	15:51	37 09:19 (G_III_03)
13	04:57	05:42	06:33	07:23	8 07:58 (G_III_01)	07:18	07:48 (G_III_04)	08:03	08:43 (G_III_06)
	21:20	20:33	19:25	18:16	22 08:20 (G_III_01)	16:16	37 09:08 (G_III_03)	15:51	37 09:20 (G_III_03)
14	04:58	05:44	06:35	07:25	8 07:58 (G_III_01)	07:20	07:50 (G_III_04)	08:04	08:43 (G_III_06)
	21:19	20:31	19:23	18:13	22 08:20 (G_III_01)	16:15	36 09:09 (G_III_03)	15:51	37 09:20 (G_III_03)
15	05:00	05:45	06:36	07:26	8 07:58 (G_III_01)	07:22	07:52 (G_III_04)	08:05	08:44 (G_III_06)
	21:18	20:29	19:20	18:11	20 08:18 (G_III_01)	16:13	34 09:11 (G_III_03)	15:51	36 09:20 (G_III_03)
16	05:01	05:47	06:38	07:28	8 07:58 (G_III_01)	07:24	08:44 (G_III_03)	08:06	08:45 (G_III_06)
	21:17	20:27	19:18	18:09	20 08:18 (G_III_01)	16:12	28 09:12 (G_III_03)	15:51	36 09:21 (G_III_03)
17	05:02	05:49	06:39	07:30	8 07:59 (G_III_01)	07:25	08:44 (G_III_03)	08:06	08:45 (G_III_06)
	21:16	20:25	19:16	18:07	18 08:17 (G_III_01)	16:10	29 09:13 (G_III_03)	15:52	35 09:20 (G_III_03)
18	05:03	05:50	06:41	07:32	8 08:01 (G_III_01)	07:27	08:44 (G_III_03)	08:07	08:45 (G_III_06)
	21:15	20:23	19:13	18:05	14 08:15 (G_III_01)	16:09	29 09:13 (G_III_03)	15:52	36 09:21 (G_III_03)
19	05:05	05:52	06:43	07:33	8 08:03 (G_III_01)	07:29	08:44 (G_III_03)	08:08	08:46 (G_III_06)
	21:14	20:21	19:11	18:03	10 08:13 (G_III_01)	16:08	30 09:14 (G_III_03)	15:52	35 09:21 (G_III_03)
20	05:06	05:54	06:44	07:35		07:31	08:43 (G_III_06)	08:09	08:46 (G_III_06)
	21:12	20:19	19:09	18:00		16:06	32 09:15 (G_III_03)	15:52	35 09:21 (G_III_03)
21	05:07	05:55	06:46	07:37		07:32	08:40 (G_III_06)	08:09	08:47 (G_III_06)
	21:11	20:17	19:06	17:58		16:05	35 09:15 (G_III_03)	15:53	35 09:22 (G_III_03)
22	05:09	05:57	06:48	07:39		07:34	08:38 (G_III_06)	08:10	08:48 (G_III_06)
	21:10	20:15	19:04	17:56		16:04	37 09:15 (G_III_03)	15:53	35 09:23 (G_III_03)
23	05:10	05:58	06:49	07:41		07:36	08:38 (G_III_06)	08:10	08:48 (G_III_06)
	21:09	20:13	19:02	17:54		16:03	38 09:16 (G_III_03)	15:54	35 09:23 (G_III_03)
24	05:11	06:00	06:51	07:42		07:37	08:37 (G_III_06)	08:11	08:48 (G_III_06)
	21:07	20:10	18:59	17:52		16:02	39 09:16 (G_III_03)	15:54	35 09:23 (G_III_03)
25	05:13	06:02	06:53	06:44	7 07:57 (G_III_02)	07:39	08:37 (G_III_06)	08:11	08:49 (G_III_06)
	21:06	20:08	18:57	16:50	3 08:00 (G_III_02)	16:01	40 09:17 (G_III_03)	15:55	36 09:25 (G_III_03)
26	05:14	06:03	06:54	06:46	7 07:52 (G_III_02)	07:40	08:36 (G_III_06)	08:11	08:49 (G_III_06)
	21:04	20:06	18:55	16:48	12 08:04 (G_III_02)	16:00	41 09:17 (G_III_03)	15:56	36 09:25 (G_III_03)
27	05:16	06:05	06:56	06:48	7 07:50 (G_III_02)	07:42	08:37 (G_III_06)	08:12	08:50 (G_III_06)
	21:03	20:04	18:52	16:46	16 08:06 (G_III_02)	15:59	40 09:17 (G_III_03)	15:56	35 09:25 (G_III_03)
28	05:17	06:07	06:58	06:50	7 07:49 (G_III_02)	07:44	08:37 (G_III_06)	08:12	08:50 (G_III_06)
	21:01	20:02	18:50	16:44	19 08:08 (G_III_02)	15:58	41 09:18 (G_III_03)	15:57	36 09:26 (G_III_03)
29	05:19	06:08	06:59	06:51	7 07:48 (G_III_02)	07:45	08:36 (G_III_06)	08:12	08:50 (G_III_06)
	21:00	19:59	18:48	16:42	21 08:09 (G_III_02)	15:57	41 09:17 (G_III_03)	15:58	37 09:27 (G_III_03)
30	05:20	06:10	07:01	06:53	7 07:47 (G_III_02)	07:47	08:37 (G_III_06)	08:12	08:51 (G_III_06)
	20:58	19:57	18:45	16:40	23 08:10 (G_III_02)	15:56	41 09:18 (G_III_03)	15:59	36 09:27 (G_III_03)
31	05:22	06:12		06:55	7 07:47 (G_III_02)			08:12	08:51 (G_III_06)
	20:57	19:55		16:38	23 08:10 (G_III_02)			16:00	37 09:28 (G_III_03)
Sonnenscheinstunden	503	454	381	331		266		243	
astr.max.mögl.Beschattung				363		976		1150	

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 Layout GIII_33 Schattenrezeptor: IO 39 - Friedland, Günthersdorf 1
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	08:12 16:01 41	08:55 (G_III_06) 07:45 09:36 (G_III_03) 16:49 25	08:18 (G_III_04) 06:51 08:43 (G_III_02) 17:41 21	07:29 (G_III_01) 06:40 07:50 (G_III_01) 19:36 20:27	05:35 20:27 21:13	04:50 21:13
2	08:12 16:02 41	08:55 (G_III_06) 07:43 09:36 (G_III_03) 16:51 26	08:19 (G_III_04) 06:49 08:45 (G_III_02) 17:43 20	07:30 (G_III_01) 06:38 07:50 (G_III_01) 19:37 20:29	05:33 20:29 21:14	04:49 21:14
3	08:12 16:03 42	08:55 (G_III_06) 07:42 09:37 (G_III_03) 16:53 26	08:19 (G_III_04) 06:47 08:45 (G_III_02) 17:45 18	07:30 (G_III_01) 06:36 07:48 (G_III_01) 19:39 20:30	05:31 20:30 21:15	04:48 21:15
4	08:12 16:05 42	08:56 (G_III_06) 07:40 09:38 (G_III_03) 16:55 26	08:19 (G_III_04) 06:45 08:45 (G_III_02) 17:47 16	07:31 (G_III_01) 06:33 07:47 (G_III_01) 19:41 20:32	05:29 20:32 21:16	04:47 21:16
5	08:11 16:06 42	08:56 (G_III_06) 07:39 09:38 (G_III_03) 16:57 26	08:19 (G_III_04) 06:42 08:45 (G_III_02) 17:49 12	07:33 (G_III_01) 06:31 07:45 (G_III_01) 19:43 20:34	05:28 20:34 21:17	04:46 21:17
6	08:11 16:07 42	08:57 (G_III_06) 07:37 09:39 (G_III_03) 16:59 25	08:20 (G_III_02) 06:40 08:45 (G_III_02) 17:50 6	07:35 (G_III_01) 06:29 07:41 (G_III_01) 19:44 20:35	05:26 20:35 21:18	04:46 21:18
7	08:11 16:08 42	08:57 (G_III_06) 07:35 09:39 (G_III_03) 17:00 25	08:21 (G_III_02) 06:38 08:46 (G_III_02) 17:52 25	06:27 19:46 20:37	05:24 20:37 21:19	04:45 21:19
8	08:10 16:10 43	08:58 (G_III_06) 07:33 09:41 (G_III_03) 17:02 25	08:21 (G_III_02) 06:36 08:46 (G_III_02) 17:54 25	06:24 19:48 20:39	05:22 20:39 21:20	04:45 21:20
9	08:10 16:11 43	08:58 (G_III_06) 07:32 09:41 (G_III_03) 17:04 23	08:22 (G_III_02) 06:33 08:45 (G_III_02) 17:56 23	06:22 19:49 20:40	05:20 20:40 21:21	04:44 21:21
10	08:09 16:12 43	08:58 (G_III_06) 07:30 09:41 (G_III_03) 17:06 23	08:22 (G_III_02) 06:31 08:45 (G_III_02) 17:57 23	06:20 19:51 20:42	05:19 20:42 21:22	04:44 21:22
11	08:09 16:14 42	08:59 (G_III_06) 07:28 09:41 (G_III_03) 17:08 21	08:23 (G_III_02) 06:29 08:44 (G_III_02) 17:59 21	06:17 19:53 20:43	05:17 20:43 21:23	04:43 21:23
12	08:08 16:15 43	09:00 (G_III_06) 07:26 09:43 (G_III_03) 17:10 19	08:24 (G_III_02) 06:27 08:43 (G_III_02) 18:01 19	06:15 19:55 20:45	05:15 20:45 21:23	04:43 21:23
13	08:07 16:17 42	09:01 (G_III_06) 07:24 09:43 (G_III_03) 17:12 15	08:26 (G_III_02) 06:24 08:41 (G_III_02) 18:03 15	06:13 19:56 20:47	05:14 20:47 21:24	04:43 21:24
14	08:07 16:18 41	09:02 (G_III_06) 07:22 09:43 (G_III_03) 17:14 11	08:28 (G_III_02) 06:22 08:39 (G_III_02) 18:04 11	06:11 19:58 20:48	05:12 20:48 21:25	04:42 21:25
15	08:06 16:20 41	09:02 (G_III_06) 07:20 09:43 (G_III_03) 17:15 16	06:20 18:06 06:17	06:09 20:00 20:50	05:10 20:50 21:25	04:42 21:25
16	08:05 16:21 40	09:04 (G_III_06) 07:18 09:44 (G_III_03) 17:17 17	06:17 18:08 06:15	06:06 20:01 20:51	05:09 20:51 21:26	04:42 21:26
17	08:04 16:23 39	09:05 (G_III_06) 07:16 09:44 (G_III_03) 17:19 18	06:15 18:10 06:13	06:04 20:03 20:53	05:07 20:53 21:26	04:42 21:26
18	08:03 16:25 38	09:06 (G_III_06) 07:14 09:44 (G_III_03) 17:21 19	06:13 18:11 06:11	06:02 20:05 20:54	05:06 20:54 21:27	04:42 21:27
19	08:02 16:26 37	09:07 (G_III_06) 07:12 09:44 (G_III_03) 17:23 20	06:11 18:13 07:40 (G_III_01)	06:00 20:07 20:56	05:05 20:56 21:27	04:42 21:27
20	08:01 16:28 31	09:12 (G_III_06) 07:10 09:44 (G_III_03) 17:25 3	06:08 18:15 07:43 (G_III_01)	05:58 20:08 20:57	05:03 20:57 21:27	04:42 21:27
21	08:00 16:30 29	09:15 (G_III_03) 07:08 09:44 (G_III_03) 17:27 11	06:06 18:17 07:35 (G_III_01)	05:56 20:10 20:59	05:02 20:59 21:27	04:42 21:27
22	07:59 16:31 28	09:16 (G_III_03) 07:06 09:44 (G_III_03) 17:28 15	06:04 18:18 07:33 (G_III_01)	05:53 20:12 21:00	05:00 21:00 21:28	04:42 21:28
23	07:57 16:33 27	09:16 (G_III_03) 07:04 09:43 (G_III_03) 17:30 18	06:01 18:20 07:31 (G_III_01)	05:51 20:13 21:02	04:59 21:02 21:28	04:43 21:28
24	07:56 16:35 29	08:25 (G_III_04) 07:02 09:43 (G_III_03) 17:32 19	05:59 18:22 07:30 (G_III_01)	05:49 20:15 21:03	04:58 21:03 21:28	04:43 21:28
25	07:55 16:37 33	08:22 (G_III_04) 07:00 09:42 (G_III_03) 17:34 21	05:57 18:24 07:50 (G_III_01)	05:47 20:17 21:04	04:57 21:04 21:28	04:43 21:28
26	07:54 16:38 36	08:21 (G_III_04) 06:58 09:42 (G_III_03) 17:36 21	05:54 18:25 07:29 (G_III_01)	05:45 20:18 21:06	04:56 21:06 21:28	04:44 21:28
27	07:52 16:40 38	08:19 (G_III_04) 06:56 09:40 (G_III_03) 17:38 22	05:52 18:27 07:29 (G_III_01)	05:43 20:20 21:07	04:54 21:07 21:28	04:44 21:28
28	07:51 16:42 36	08:19 (G_III_04) 06:53 09:39 (G_III_03) 17:39 22	05:50 18:29 07:29 (G_III_01)	05:41 20:22 21:08	04:53 21:08 21:28	04:45 21:28
29	07:50 16:44 34	08:18 (G_III_04) 09:37 (G_III_03)	06:47 19:30 06:45	05:39 20:24 21:10	04:52 21:10 21:28	04:45 21:28
30	07:48 16:46 23	08:19 (G_III_04) 08:42 (G_III_02)	06:45 19:32 06:43	05:37 20:25 21:11	04:51 21:11 21:27	04:46 21:27
31	07:47 16:47 25	08:18 (G_III_04) 08:43 (G_III_02)	06:43 19:34 367	04:50 21:12 416	04:50 21:12 486	04:46 21:27 500
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	1153	468	93			

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 39 - Friedland, Günthersdorf 1

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

	Juli	August	September	Oktober		November		Dezember				
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43		06:57 16:36	22	07:52 (G_III_02) 08:14 (G_III_02)	07:48 15:56	42	08:41 (G_III_06) 09:23 (G_III_03)	
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41		06:59 16:35	24	07:51 (G_III_02) 08:15 (G_III_02)	07:50 15:55	42	08:42 (G_III_06) 09:24 (G_III_03)	
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38		07:00 16:33	24	07:51 (G_III_02) 08:15 (G_III_02)	07:51 15:54	43	08:42 (G_III_06) 09:25 (G_III_03)	
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36		07:02 16:31	25	07:51 (G_III_02) 08:16 (G_III_02)	07:52 15:54	43	08:42 (G_III_06) 09:25 (G_III_03)	
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34		07:04 16:29	26	07:50 (G_III_04) 08:16 (G_III_02)	07:54 15:53	42	08:42 (G_III_06) 09:24 (G_III_03)	
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31		07:06 16:27	26	07:50 (G_III_04) 08:16 (G_III_02)	07:55 15:53	42	08:43 (G_III_06) 09:25 (G_III_03)	
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29		07:08 16:26	26	07:50 (G_III_04) 08:16 (G_III_02)	07:56 15:52	42	08:43 (G_III_06) 09:25 (G_III_03)	
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	10	08:09 (G_III_01) 08:19 (G_III_01)	07:09 16:24	27	07:48 (G_III_04) 08:15 (G_III_02)	07:57 15:52	42	08:43 (G_III_06) 09:25 (G_III_03)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	14	08:07 (G_III_01) 08:21 (G_III_01)	07:11 16:22	26	07:49 (G_III_04) 08:15 (G_III_02)	07:59 15:52	42	08:44 (G_III_06) 09:26 (G_III_03)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	18	08:04 (G_III_01) 08:22 (G_III_01)	07:13 16:21	25	07:49 (G_III_04) 08:14 (G_III_02)	08:00 15:52	41	08:45 (G_III_06) 09:26 (G_III_03)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	20	08:03 (G_III_01) 08:23 (G_III_01)	07:15 16:19	25	07:49 (G_III_04) 08:14 (G_III_02)	08:01 15:51	41	08:45 (G_III_06) 09:26 (G_III_03)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	20	08:03 (G_III_01) 08:23 (G_III_01)	07:17 16:18	25	07:50 (G_III_04) 09:03 (G_III_03)	08:02 15:51	42	08:45 (G_III_06) 09:27 (G_III_03)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	22	08:02 (G_III_01) 08:24 (G_III_01)	07:18 16:16	34	07:50 (G_III_04) 09:09 (G_III_03)	08:03 15:51	41	08:46 (G_III_06) 09:27 (G_III_03)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	22	08:02 (G_III_01) 08:24 (G_III_01)	07:20 16:14	36	07:51 (G_III_04) 09:11 (G_III_03)	08:04 15:51	41	08:46 (G_III_06) 09:27 (G_III_03)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	22	08:01 (G_III_01) 08:23 (G_III_01)	07:22 16:13	38	07:52 (G_III_04) 09:13 (G_III_03)	08:05 15:51	41	08:47 (G_III_06) 09:28 (G_III_03)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	21	08:01 (G_III_01) 08:22 (G_III_01)	07:24 16:12	36	07:54 (G_III_04) 09:15 (G_III_03)	08:06 15:51	40	08:48 (G_III_06) 09:28 (G_III_03)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	20	08:02 (G_III_01) 08:22 (G_III_01)	07:25 16:10	33	07:56 (G_III_04) 09:16 (G_III_03)	08:06 15:52	41	08:47 (G_III_06) 09:28 (G_III_03)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	19	08:02 (G_III_01) 08:21 (G_III_01)	07:27 16:09	28	07:59 (G_III_04) 09:17 (G_III_03)	08:07 15:52	40	08:48 (G_III_06) 09:28 (G_III_03)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	17	08:03 (G_III_01) 08:20 (G_III_01)	07:29 16:08	27	08:51 (G_III_03) 09:18 (G_III_03)	08:08 15:52	40	08:49 (G_III_06) 09:29 (G_III_03)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	14	08:05 (G_III_01) 08:19 (G_III_01)	07:31 16:06	28	08:51 (G_III_03) 09:19 (G_III_03)	08:09 15:52	40	08:49 (G_III_06) 09:29 (G_III_03)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	9	08:07 (G_III_01) 08:16 (G_III_01)	07:32 16:05	29	08:50 (G_III_03) 09:19 (G_III_03)	08:09 15:53	40	08:50 (G_III_06) 09:30 (G_III_03)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56			07:34 16:04	30	08:50 (G_III_03) 09:20 (G_III_03)	08:10 15:53	40	08:51 (G_III_06) 09:31 (G_III_03)
23	05:10 21:09	05:58 20:13	06:49 19:02	07:41 17:54			07:36 16:03	36	08:45 (G_III_06) 09:21 (G_III_03)	08:10 15:54	40	08:51 (G_III_06) 09:31 (G_III_03)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52			07:37 16:02	38	08:43 (G_III_06) 09:21 (G_III_03)	08:11 15:54	40	08:51 (G_III_06) 09:31 (G_III_03)
25	05:13 21:06	06:02 20:08	06:53 18:57	06:44 16:50			07:39 16:01	39	08:43 (G_III_06) 09:22 (G_III_03)	08:11 15:55	40	08:52 (G_III_06) 09:32 (G_III_03)
26	05:14 21:04	06:03 20:06	06:54 18:55	06:46 16:48			07:40 16:00	40	08:42 (G_III_06) 09:22 (G_III_03)	08:11 15:56	41	08:52 (G_III_06) 09:33 (G_III_03)
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 16:46	3	08:01 (G_III_02) 08:04 (G_III_02)	07:42 15:59	40	08:42 (G_III_06) 09:22 (G_III_03)	08:12 15:56	40	08:53 (G_III_06) 09:33 (G_III_03)
28	05:17 21:01	06:07 20:02	06:58 18:50	06:50 16:44	12	07:57 (G_III_02) 08:09 (G_III_02)	07:44 15:58	41	08:42 (G_III_06) 09:23 (G_III_03)	08:12 15:57	40	08:53 (G_III_06) 09:33 (G_III_03)
29	05:19 21:00	06:08 19:59	06:59 18:48	06:51 16:42	16	07:55 (G_III_02) 08:11 (G_III_02)	07:45 15:57	42	08:41 (G_III_06) 09:23 (G_III_03)	08:12 15:58	41	08:53 (G_III_06) 09:34 (G_III_03)
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40	18	07:54 (G_III_02) 08:12 (G_III_02)	07:47 15:56	43	08:41 (G_III_06) 09:24 (G_III_03)	08:12 15:59	41	08:54 (G_III_06) 09:35 (G_III_03)
31	05:22 20:57	06:12 19:55		06:55 16:38	21	07:52 (G_III_02) 08:13 (G_III_02)				08:12 16:00	41	08:54 (G_III_06) 09:35 (G_III_03)
Sonnenscheinstunden	503	454	381	331	318		266	939		243	1272	
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)	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 Layout GIII_33 Schattenrezeptor: IO 40 - Friedland, Günthersdorf 44

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar			Februar			März			April	Mai	Jun
1	08:12		09:04 (G_III_06)	07:45		08:26 (G_III_04)	06:51		07:38 (G_III_01)	06:40	05:35	04:50
	16:01	48	09:52 (G_III_03)	16:49	29	08:55 (G_III_02)	17:41	17	07:55 (G_III_01)	19:36	20:27	21:13
2	08:12		09:04 (G_III_06)	07:43		08:27 (G_III_04)	06:49		07:40 (G_III_01)	06:38	05:33	04:49
	16:02	48	09:52 (G_III_03)	16:51	29	08:56 (G_III_02)	17:43	14	07:54 (G_III_01)	19:37	20:29	21:14
3	08:12		09:05 (G_III_06)	07:42		08:28 (G_III_04)	06:47		07:41 (G_III_01)	06:36	05:31	04:48
	16:03	48	09:53 (G_III_03)	16:53	27	08:55 (G_III_02)	17:45	9	07:50 (G_III_01)	19:39	20:30	21:15
4	08:12		09:06 (G_III_06)	07:40		08:29 (G_III_04)	06:45			06:33	05:29	04:47
	16:05	48	09:54 (G_III_03)	16:55	26	08:55 (G_III_02)	17:47			19:41	20:32	21:16
5	08:11		09:06 (G_III_06)	07:39		08:30 (G_III_04)	06:42			06:31	05:28	04:46
	16:06	47	09:53 (G_III_03)	16:57	24	08:54 (G_III_02)	17:49			19:43	20:34	21:17
6	08:11		09:07 (G_III_06)	07:37		08:31 (G_III_02)	06:40			06:29	05:26	04:46
	16:07	47	09:54 (G_III_03)	16:59	23	08:54 (G_III_02)	17:50			19:44	20:35	21:18
7	08:11		09:07 (G_III_06)	07:35		08:33 (G_III_02)	06:38			06:27	05:24	04:45
	16:08	47	09:54 (G_III_03)	17:00	21	08:54 (G_III_02)	17:52			19:46	20:37	21:19
8	08:10		09:09 (G_III_06)	07:33		08:34 (G_III_02)	06:36			06:24	05:22	04:45
	16:10	46	09:55 (G_III_03)	17:02	19	08:53 (G_III_02)	17:54			19:48	20:39	21:20
9	08:10		09:09 (G_III_06)	07:32		08:35 (G_III_02)	06:33			06:22	05:20	04:44
	16:11	46	09:55 (G_III_03)	17:04	16	08:51 (G_III_02)	17:56			19:49	20:40	21:21
10	08:09		09:10 (G_III_06)	07:30		08:37 (G_III_02)	06:31			06:20	05:19	04:44
	16:12	45	09:55 (G_III_03)	17:06	12	08:49 (G_III_02)	17:57			19:51	20:42	21:22
11	08:09		09:11 (G_III_06)	07:28			06:29			06:17	05:17	04:43
	16:14	44	09:55 (G_III_03)	17:08			17:59			19:53	20:43	21:23
12	08:08		09:13 (G_III_06)	07:26			06:27			06:15	05:15	04:43
	16:15	43	09:56 (G_III_03)	17:10			18:01			19:55	20:45	21:23
13	08:07		09:14 (G_III_06)	07:24			06:24			06:13	05:14	04:43
	16:17	41	09:56 (G_III_03)	17:12			18:03			19:56	20:47	21:24
14	08:06		09:16 (G_III_06)	07:22			06:22			06:11	05:12	04:42
	16:18	38	09:56 (G_III_03)	17:14			18:04			19:58	20:48	21:25
15	08:06		09:27 (G_III_03)	07:20			06:20			06:09	05:10	04:42
	16:20	29	09:56 (G_III_03)	17:15			18:06			20:00	20:50	21:25
16	08:05		09:28 (G_III_03)	07:18			06:17			06:06	05:09	04:42
	16:21	28	09:56 (G_III_03)	17:17			18:08			20:01	20:51	21:26
17	08:04		09:29 (G_III_03)	07:16		07:44 (G_III_01)	06:15			06:04	05:07	04:42
	16:23	27	09:56 (G_III_03)	17:19	8	07:52 (G_III_01)	18:10			20:03	20:53	21:26
18	08:03		09:30 (G_III_03)	07:14		07:42 (G_III_01)	06:13			06:02	05:06	04:42
	16:25	25	09:55 (G_III_03)	17:21	13	07:55 (G_III_01)	18:11			20:05	20:54	21:27
19	08:02		09:30 (G_III_03)	07:12		07:40 (G_III_01)	06:11			06:00	05:05	04:42
	16:26	24	09:54 (G_III_03)	17:23	16	07:56 (G_III_01)	18:13			20:07	20:56	21:27
20	08:01		08:29 (G_III_04)	07:10		07:39 (G_III_01)	06:08			05:58	05:03	04:42
	16:28	35	09:54 (G_III_03)	17:25	19	07:58 (G_III_01)	18:15			20:08	20:57	21:27
21	08:00		08:28 (G_III_04)	07:08		07:37 (G_III_01)	06:06			05:56	05:02	04:42
	16:30	38	09:53 (G_III_03)	17:27	21	07:58 (G_III_01)	18:17			20:10	20:59	21:27
22	07:59		08:27 (G_III_04)	07:06		07:37 (G_III_01)	06:04			05:53	05:00	04:42
	16:31	38	09:52 (G_III_03)	17:28	21	07:58 (G_III_01)	18:18			20:12	21:00	21:28
23	07:57		08:25 (G_III_04)	07:04		07:36 (G_III_01)	06:01			05:51	04:59	04:43
	16:33	37	09:50 (G_III_03)	17:30	23	07:59 (G_III_01)	18:20			20:13	21:02	21:28
24	07:56		08:25 (G_III_04)	07:02		07:36 (G_III_01)	05:59			05:49	04:58	04:43
	16:35	33	09:48 (G_III_03)	17:32	23	07:59 (G_III_01)	18:22			20:15	21:03	21:28
25	07:55		08:25 (G_III_04)	07:00		07:36 (G_III_01)	05:57			05:47	04:57	04:43
	16:37	26	08:51 (G_III_02)	17:34	23	07:59 (G_III_01)	18:24			20:17	21:04	21:28
26	07:54		08:25 (G_III_04)	06:58		07:36 (G_III_01)	05:54			05:45	04:56	04:44
	16:38	27	08:52 (G_III_02)	17:36	22	07:58 (G_III_01)	18:25			20:18	21:06	21:28
27	07:52		08:24 (G_III_04)	06:56		07:36 (G_III_01)	05:52			05:43	04:54	04:44
	16:40	29	08:53 (G_III_02)	17:38	21	07:57 (G_III_01)	18:27			20:20	21:07	21:28
28	07:51		08:25 (G_III_04)	06:53		07:37 (G_III_01)	05:50			05:41	04:53	04:45
	16:42	29	08:54 (G_III_02)	17:39	19	07:56 (G_III_01)	18:29			20:22	21:08	21:28
29	07:50		08:25 (G_III_04)				06:47			05:39	04:52	04:45
	16:44	29	08:54 (G_III_02)				19:30			20:24	21:10	21:28
30	07:48		08:26 (G_III_04)				06:45			05:37	04:51	04:46
	16:46	29	08:55 (G_III_02)				19:32			20:25	21:11	21:27
31	07:47		08:26 (G_III_04)				06:43				04:50	
	16:47	29	08:55 (G_III_02)				19:34				21:12	
Sonnenscheinstunden	258			277			367			416	486	500
astr.max.mögl.Beschattung	1148			455			40					

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 40 - Friedland, Günthersdorf 44
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

	Juli	August	September	Oktober		November		Dezember		
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43		06:57 16:36	12	08:07 (G_III_02) 07:48 08:19 (G_III_02) 15:56	44	08:53 (G_III_06) 09:37 (G_III_03)
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41		06:59 16:35	16	08:05 (G_III_02) 07:50 08:21 (G_III_02) 15:55	45	08:53 (G_III_06) 09:38 (G_III_03)
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38		07:00 16:33	20	08:03 (G_III_02) 07:51 08:23 (G_III_02) 15:54	46	08:53 (G_III_06) 09:39 (G_III_03)
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36		07:02 16:31	22	08:02 (G_III_02) 07:52 08:24 (G_III_02) 15:54	46	08:53 (G_III_06) 09:39 (G_III_03)
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34		07:04 16:29	23	08:02 (G_III_02) 07:54 08:25 (G_III_02) 15:53	47	08:52 (G_III_06) 09:39 (G_III_03)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31		07:06 16:27	24	08:01 (G_III_02) 07:55 08:25 (G_III_02) 15:53	47	08:53 (G_III_06) 09:40 (G_III_03)
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29		07:08 16:26	27	07:59 (G_III_04) 07:56 08:26 (G_III_02) 15:52	47	08:53 (G_III_06) 09:40 (G_III_03)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27		07:09 16:24	27	07:58 (G_III_04) 07:57 08:25 (G_III_02) 15:52	48	08:53 (G_III_06) 09:41 (G_III_03)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25		07:11 16:22	29	07:57 (G_III_04) 07:59 08:26 (G_III_02) 15:52	48	08:54 (G_III_06) 09:42 (G_III_03)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	4	08:18 (G_III_01) 07:13 08:22 (G_III_01) 16:21	29	07:57 (G_III_04) 08:00 08:26 (G_III_02) 15:52	48	08:54 (G_III_06) 09:42 (G_III_03)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	12	08:14 (G_III_01) 07:15 08:26 (G_III_01) 16:19	30	07:56 (G_III_04) 08:01 08:26 (G_III_02) 15:51	48	08:54 (G_III_06) 09:42 (G_III_03)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	16	08:12 (G_III_01) 07:17 08:28 (G_III_01) 16:18	30	07:56 (G_III_04) 08:02 08:26 (G_III_02) 15:51	48	08:55 (G_III_06) 09:43 (G_III_03)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	18	08:11 (G_III_01) 07:18 08:29 (G_III_01) 16:16	29	07:57 (G_III_04) 08:03 08:26 (G_III_02) 15:51	48	08:55 (G_III_06) 09:43 (G_III_03)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	20	08:10 (G_III_01) 07:20 08:30 (G_III_01) 16:14	29	07:57 (G_III_04) 08:04 08:26 (G_III_02) 15:51	49	08:55 (G_III_06) 09:44 (G_III_03)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	22	08:08 (G_III_01) 07:22 08:30 (G_III_01) 16:13	29	07:57 (G_III_04) 08:05 08:26 (G_III_02) 15:51	48	08:56 (G_III_06) 09:44 (G_III_03)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	22	08:08 (G_III_01) 07:24 08:30 (G_III_01) 16:12	27	07:58 (G_III_04) 08:06 08:25 (G_III_02) 15:51	49	08:56 (G_III_06) 09:45 (G_III_03)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	23	08:07 (G_III_01) 07:25 08:30 (G_III_01) 16:10	26	07:59 (G_III_04) 08:06 08:25 (G_III_02) 15:52	48	08:56 (G_III_06) 09:44 (G_III_03)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	23	08:07 (G_III_01) 07:27 08:30 (G_III_01) 16:09	33	07:59 (G_III_04) 08:07 09:22 (G_III_03) 15:52	48	08:57 (G_III_06) 09:45 (G_III_03)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	22	08:08 (G_III_01) 07:29 08:30 (G_III_01) 16:08	37	08:00 (G_III_04) 08:08 09:25 (G_III_03) 15:52	48	08:58 (G_III_06) 09:46 (G_III_03)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	21	08:08 (G_III_01) 07:31 08:29 (G_III_01) 16:06	38	08:02 (G_III_04) 08:09 09:27 (G_III_03) 15:52	49	08:57 (G_III_06) 09:46 (G_III_03)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	20	08:09 (G_III_01) 07:32 08:29 (G_III_01) 16:05	38	08:03 (G_III_04) 08:09 09:28 (G_III_03) 15:53	49	08:58 (G_III_06) 09:47 (G_III_03)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	18	08:09 (G_III_01) 07:34 08:27 (G_III_01) 16:04	36	08:05 (G_III_04) 08:10 09:30 (G_III_03) 15:53	49	08:59 (G_III_06) 09:48 (G_III_03)
23	05:10 21:09	05:58 20:13	06:49 19:02	07:41 17:54	15	08:10 (G_III_01) 07:36 08:25 (G_III_01) 16:03	24	09:07 (G_III_03) 08:10 09:31 (G_III_03) 15:54	49	08:59 (G_III_06) 09:48 (G_III_03)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	12	08:12 (G_III_01) 07:37 08:24 (G_III_01) 16:02	26	09:07 (G_III_03) 08:11 09:33 (G_III_03) 15:54	49	08:59 (G_III_06) 09:48 (G_III_03)
25	05:13 21:06	06:02 20:08	06:53 18:57	06:44 16:50	5	07:15 (G_III_01) 07:39 07:20 (G_III_01) 16:01	27	09:07 (G_III_03) 08:11 09:34 (G_III_03) 15:55	48	09:01 (G_III_06) 09:49 (G_III_03)
26	05:14 21:04	06:03 20:06	06:54 18:55	06:46 16:48		07:40 16:00	28	09:06 (G_III_03) 08:11 09:34 (G_III_03) 15:56	48	09:01 (G_III_06) 09:49 (G_III_03)
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 16:46		07:42 15:59	29	09:06 (G_III_03) 08:12 09:35 (G_III_03) 15:56	49	09:01 (G_III_06) 09:50 (G_III_03)
28	05:17 21:01	06:07 20:02	06:58 18:50	06:50 16:44		07:44 15:58	38	08:56 (G_III_06) 08:12 09:36 (G_III_03) 15:57	48	09:02 (G_III_06) 09:50 (G_III_03)
29	05:19 21:00	06:08 19:59	06:59 18:48	06:51 16:42		07:45 15:57	41	08:54 (G_III_06) 08:12 09:36 (G_III_03) 15:58	48	09:02 (G_III_06) 09:50 (G_III_03)
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40		07:47 15:56	43	08:54 (G_III_06) 08:12 09:37 (G_III_03) 15:59	48	09:03 (G_III_06) 09:51 (G_III_03)
31	05:22 20:57	06:12 19:55		06:55 16:38	5	08:10 (G_III_02) 07:40 08:15 (G_III_02) 16:00			48	09:03 (G_III_06) 09:51 (G_III_03)
Sonnenscheinstunden	503	454	381	331	278	266	867	243	1482	
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)	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 Layout GIII_33 Schattenrezeptor: IO 41 - Friedland, Günthersdorf 45

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar			Februar			März			April	Mai	Jun
1	08:12		09:15 (G_III_06)	07:45		08:34 (G_III_04)	06:51		07:44 (G_III_01)	06:40	05:35	04:49
	16:01	53	10:09 (G_III_03)	16:49	30	09:04 (G_III_02)	17:41	15	07:59 (G_III_01)	19:36	20:27	21:13
2	08:12		09:15 (G_III_06)	07:43		08:36 (G_III_04)	06:49		07:46 (G_III_01)	06:38	05:33	04:49
	16:02	52	10:09 (G_III_03)	16:51	29	09:05 (G_III_02)	17:43	11	07:57 (G_III_01)	19:37	20:29	21:14
3	08:12		09:16 (G_III_06)	07:42		08:37 (G_III_04)	06:47			06:36	05:31	04:48
	16:03	51	10:09 (G_III_03)	16:53	27	09:04 (G_III_02)	17:45			19:39	20:30	21:15
4	08:12		09:17 (G_III_06)	07:40		08:40 (G_III_02)	06:45			06:33	05:29	04:47
	16:05	50	10:10 (G_III_03)	16:55	23	09:03 (G_III_02)	17:47			19:41	20:32	21:16
5	08:11		09:18 (G_III_06)	07:39		08:41 (G_III_02)	06:42			06:31	05:28	04:46
	16:06	48	10:10 (G_III_03)	16:57	21	09:02 (G_III_02)	17:48			19:43	20:34	21:17
6	08:11		09:19 (G_III_06)	07:37		08:42 (G_III_02)	06:40			06:29	05:26	04:46
	16:07	47	10:10 (G_III_03)	16:59	19	09:01 (G_III_02)	17:50			19:44	20:35	21:18
7	08:11		09:20 (G_III_06)	07:35		08:45 (G_III_02)	06:38			06:27	05:24	04:45
	16:08	45	10:10 (G_III_03)	17:00	15	09:00 (G_III_02)	17:52			19:46	20:37	21:19
8	08:10		09:22 (G_III_06)	07:33		08:47 (G_III_02)	06:36			06:24	05:22	04:45
	16:10	42	10:11 (G_III_03)	17:02	11	08:58 (G_III_02)	17:54			19:48	20:39	21:20
9	08:10		09:23 (G_III_06)	07:32			06:33			06:22	05:20	04:44
	16:11	39	10:10 (G_III_03)	17:04			17:56			19:49	20:40	21:21
10	08:09		09:26 (G_III_06)	07:30			06:31			06:20	05:19	04:44
	16:12	34	10:10 (G_III_03)	17:06			17:57			19:51	20:42	21:22
11	08:09		09:41 (G_III_03)	07:28			06:29			06:17	05:17	04:43
	16:14	29	10:10 (G_III_03)	17:08			17:59			19:53	20:43	21:23
12	08:08		09:43 (G_III_03)	07:26			06:27			06:15	05:15	04:43
	16:15	28	10:11 (G_III_03)	17:10			18:01			19:55	20:45	21:23
13	08:07		09:44 (G_III_03)	07:24			06:24			06:13	05:14	04:43
	16:17	26	10:10 (G_III_03)	17:12			18:03			19:56	20:47	21:24
14	08:06		09:44 (G_III_03)	07:22			06:22			06:11	05:12	04:42
	16:18	26	10:10 (G_III_03)	17:14			18:04			19:58	20:48	21:25
15	08:06		08:36 (G_III_04)	07:20		07:50 (G_III_01)	06:20			06:09	05:10	04:42
	16:20	37	10:10 (G_III_03)	17:15	6	07:56 (G_III_01)	18:06			20:00	20:50	21:25
16	08:05		08:34 (G_III_04)	07:18		07:46 (G_III_01)	06:17			06:06	05:09	04:42
	16:21	42	10:09 (G_III_03)	17:17	13	07:59 (G_III_01)	18:08			20:01	20:51	21:26
17	08:04		08:33 (G_III_04)	07:16		07:45 (G_III_01)	06:15			06:04	05:07	04:42
	16:23	43	10:08 (G_III_03)	17:19	16	08:01 (G_III_01)	18:10			20:03	20:53	21:26
18	08:03		08:32 (G_III_04)	07:14		07:43 (G_III_01)	06:13			06:02	05:06	04:42
	16:25	42	10:07 (G_III_03)	17:21	19	08:02 (G_III_01)	18:11			20:05	20:54	21:27
19	08:02		08:31 (G_III_04)	07:12		07:42 (G_III_01)	06:11			06:00	05:04	04:42
	16:26	40	10:05 (G_III_03)	17:23	21	08:03 (G_III_01)	18:13			20:07	20:56	21:27
20	08:01		08:31 (G_III_04)	07:10		07:42 (G_III_01)	06:08			05:58	05:03	04:42
	16:28	36	10:03 (G_III_03)	17:25	22	08:04 (G_III_01)	18:15			20:08	20:57	21:27
21	08:00		08:31 (G_III_04)	07:08		07:40 (G_III_01)	06:06			05:56	05:02	04:42
	16:30	29	09:00 (G_III_02)	17:27	24	08:04 (G_III_01)	18:17			20:10	20:59	21:27
22	07:59		08:31 (G_III_04)	07:06		07:40 (G_III_01)	06:04			05:53	05:00	04:42
	16:31	31	09:02 (G_III_02)	17:28	24	08:04 (G_III_01)	18:18			20:12	21:00	21:28
23	07:57		08:30 (G_III_04)	07:04		07:40 (G_III_01)	06:01			05:51	04:59	04:43
	16:33	32	09:02 (G_III_02)	17:30	24	08:04 (G_III_01)	18:20			20:13	21:02	21:28
24	07:56		08:30 (G_III_04)	07:02		07:40 (G_III_01)	05:59			05:49	04:58	04:43
	16:35	33	09:03 (G_III_02)	17:32	24	08:04 (G_III_01)	18:22			20:15	21:03	21:28
25	07:55		08:30 (G_III_04)	07:00		07:41 (G_III_01)	05:57			05:47	04:57	04:43
	16:37	33	09:03 (G_III_02)	17:34	23	08:04 (G_III_01)	18:24			20:17	21:04	21:28
26	07:54		08:31 (G_III_04)	06:58		07:40 (G_III_01)	05:54			05:45	04:56	04:44
	16:38	33	09:04 (G_III_02)	17:36	22	08:02 (G_III_01)	18:25			20:18	21:06	21:28
27	07:52		08:30 (G_III_04)	06:56		07:41 (G_III_01)	05:52			05:43	04:54	04:44
	16:40	34	09:04 (G_III_02)	17:38	21	08:02 (G_III_01)	18:27			20:20	21:07	21:28
28	07:51		08:31 (G_III_04)	06:53		07:42 (G_III_01)	05:50			05:41	04:53	04:45
	16:42	34	09:05 (G_III_02)	17:39	19	08:01 (G_III_01)	18:29			20:22	21:08	21:28
29	07:50		08:31 (G_III_04)				06:47			05:39	04:52	04:45
	16:44	33	09:04 (G_III_02)				19:30			20:24	21:10	21:28
30	07:48		08:33 (G_III_04)				06:45			05:37	04:51	04:46
	16:46	32	09:05 (G_III_02)				19:32			20:25	21:11	21:27
31	07:47		08:33 (G_III_04)				06:43				04:50	
	16:47	32	09:05 (G_III_02)				19:34				21:12	
Sonnenscheinstunden	258			277			367			416	486	500
astr.max.mögl.Beschattung	1166			453			26					

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 41 - Friedland, Günthersdorf 45

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

	Juli	August	September	Oktober		November		Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43		06:57 16:36		07:48 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41		06:59 16:34		29 09:52 (G_III_03) 09:09 (G_III_06)
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38		07:00 16:33	08:16 (G_III_02)	33 09:53 (G_III_03) 09:07 (G_III_06)
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36		07:02 16:31	12 08:28 (G_III_02)	39 09:54 (G_III_03) 09:06 (G_III_06)
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34		07:04 16:29	16 08:30 (G_III_02)	42 09:55 (G_III_03) 09:05 (G_III_06)
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31		07:06 16:27	19 08:32 (G_III_02)	45 09:55 (G_III_03) 09:05 (G_III_06)
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29		07:08 16:26	21 08:33 (G_III_02)	47 09:56 (G_III_03) 09:05 (G_III_06)
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27		07:09 16:24	23 08:33 (G_III_02)	48 09:57 (G_III_03) 09:05 (G_III_06)
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25		07:11 16:22	27 08:34 (G_III_02)	49 09:57 (G_III_03) 09:05 (G_III_06)
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22		07:13 16:21	30 08:35 (G_III_02)	51 09:58 (G_III_03) 09:05 (G_III_06)
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	08:21 (G_III_01)	07:15 16:19	31 08:35 (G_III_02)	52 09:59 (G_III_03) 09:05 (G_III_06)
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	7 08:28 (G_III_01)	07:17 16:17	32 08:36 (G_III_02)	53 09:59 (G_III_03) 09:05 (G_III_06)
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	13 08:31 (G_III_01)	07:18 16:16	33 08:36 (G_III_02)	52 09:59 (G_III_03) 09:06 (G_III_06)
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	17 08:33 (G_III_01)	07:20 16:14	34 08:36 (G_III_02)	53 10:00 (G_III_03) 09:06 (G_III_06)
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	19 08:34 (G_III_01)	07:22 16:13	34 08:37 (G_III_02)	55 10:01 (G_III_03) 09:06 (G_III_06)
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	21 08:34 (G_III_01)	07:24 16:12	34 08:37 (G_III_02)	54 10:01 (G_III_03) 09:07 (G_III_06)
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	23 08:35 (G_III_01)	07:25 16:10	34 08:37 (G_III_02)	54 10:02 (G_III_03) 09:06 (G_III_06)
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	23 08:35 (G_III_01)	07:27 16:09	33 08:37 (G_III_02)	55 10:02 (G_III_03) 09:08 (G_III_06)
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	24 08:35 (G_III_01)	07:29 16:08	33 08:37 (G_III_02)	55 10:03 (G_III_03) 09:08 (G_III_06)
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	24 08:35 (G_III_01)	07:31 16:06	32 08:37 (G_III_02)	55 10:03 (G_III_03) 09:09 (G_III_06)
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	23 08:35 (G_III_01)	07:32 16:05	31 08:37 (G_III_02)	55 10:04 (G_III_03) 09:10 (G_III_06)
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	23 08:35 (G_III_01)	07:34 16:04	29 08:37 (G_III_02)	55 10:04 (G_III_03) 09:10 (G_III_06)
23	05:10 21:09	05:58 20:13	06:49 19:02	07:41 17:54	22 08:33 (G_III_01)	07:36 16:03	36 09:39 (G_III_03)	55 10:05 (G_III_03) 09:10 (G_III_06)
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	21 08:33 (G_III_01)	07:37 16:02	40 08:08 (G_III_04)	55 10:05 (G_III_03) 09:10 (G_III_06)
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 16:50	19 08:32 (G_III_01)	07:39 16:01	42 09:44 (G_III_03)	54 10:05 (G_III_03) 09:11 (G_III_06)
26	05:14 21:04	06:03 20:06	06:54 18:55	07:46 16:48	16 07:30 (G_III_01)	07:40 16:00	42 09:46 (G_III_03)	55 10:06 (G_III_03) 09:11 (G_III_06)
27	05:16 21:03	06:05 20:04	06:56 18:52	07:48 16:46	12 07:28 (G_III_01)	07:42 15:59	42 09:47 (G_III_03)	55 10:06 (G_III_03) 09:12 (G_III_06)
28	05:17 21:01	06:07 20:02	06:58 18:50	07:50 16:44	3 07:24 (G_III_01)	07:44 15:57	37 09:49 (G_III_03)	55 10:07 (G_III_03) 09:12 (G_III_06)
29	05:19 21:00	06:08 19:59	06:59 18:48	07:51 16:42		07:45 15:57	26 09:50 (G_III_03)	54 10:07 (G_III_03) 09:13 (G_III_06)
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40		07:47 15:56	26 09:50 (G_III_03)	54 10:07 (G_III_03) 09:13 (G_III_06)
31	05:22 20:57	06:12 19:55		06:55 16:38			28 09:52 (G_III_03)	54 10:08 (G_III_03) 09:14 (G_III_06)
Sonnenscheinstunden	503	454	381	331		266		53 10:08 (G_III_03)
astr.max.mögl.Beschattung				310		856		1574

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 Layout GIII_33 Schattenrezeptor: IO 42 - Friedland, Günthersdorf 46

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar			Februar			März			April	Mai	Juni
1	08:12		09:21 (G_III_06)	07:45		08:38 (G_III_04)	06:51		07:47 (G_III_01)	06:40	05:35	04:49
	16:01	49	10:16 (G_III_03)	16:49	30	09:08 (G_III_02)	17:41	14	08:01 (G_III_01)	19:36	20:27	21:13
2	08:12		09:21 (G_III_06)	07:43		08:41 (G_III_04)	06:49		07:50 (G_III_01)	06:38	05:33	04:49
	16:02	48	10:16 (G_III_03)	16:51	28	09:09 (G_III_02)	17:43	8	07:58 (G_III_01)	19:37	20:29	21:14
3	08:12		09:22 (G_III_06)	07:42		08:44 (G_III_04)	06:47			06:36	05:31	04:48
	16:03	47	10:16 (G_III_03)	16:53	24	09:08 (G_III_02)	17:45			19:39	20:30	21:15
4	08:12		09:24 (G_III_06)	07:40		08:45 (G_III_02)	06:45			06:33	05:29	04:47
	16:05	45	10:17 (G_III_03)	16:55	22	09:07 (G_III_02)	17:47			19:41	20:32	21:16
5	08:11		09:24 (G_III_06)	07:39		08:47 (G_III_02)	06:42			06:31	05:28	04:46
	16:06	44	10:17 (G_III_03)	16:57	18	09:05 (G_III_02)	17:48			19:43	20:34	21:17
6	08:11		09:26 (G_III_06)	07:37		08:48 (G_III_02)	06:40			06:29	05:26	04:46
	16:07	41	10:17 (G_III_03)	16:59	15	09:03 (G_III_02)	17:50			19:44	20:35	21:18
7	08:11		09:28 (G_III_06)	07:35		08:52 (G_III_02)	06:38			06:27	05:24	04:45
	16:08	37	10:17 (G_III_03)	17:00	10	09:02 (G_III_02)	17:52			19:46	20:37	21:19
8	08:10		09:48 (G_III_03)	07:33			06:36			06:24	05:22	04:45
	16:10	29	10:17 (G_III_03)	17:02			17:54			19:48	20:39	21:20
9	08:10		09:48 (G_III_03)	07:32			06:33			06:22	05:20	04:44
	16:11	29	10:17 (G_III_03)	17:04			17:56			19:49	20:40	21:21
10	08:09		09:49 (G_III_03)	07:30			06:31			06:20	05:19	04:44
	16:12	28	10:17 (G_III_03)	17:06			17:57			19:51	20:42	21:22
11	08:09		09:50 (G_III_03)	07:28			06:29			06:17	05:17	04:43
	16:14	26	10:16 (G_III_03)	17:08			17:59			19:53	20:43	21:23
12	08:08		08:46 (G_III_02)	07:26			06:27			06:15	05:15	04:43
	16:15	34	10:17 (G_III_03)	17:10			18:01			19:55	20:45	21:23
13	08:07		08:38 (G_III_04)	07:24			06:24			06:13	05:14	04:43
	16:17	40	10:16 (G_III_03)	17:12			18:03			19:56	20:47	21:24
14	08:06		08:36 (G_III_04)	07:22		07:52 (G_III_01)	06:22			06:11	05:12	04:42
	16:18	45	10:16 (G_III_03)	17:14	6	07:58 (G_III_01)	18:04			19:58	20:48	21:25
15	08:06		08:35 (G_III_04)	07:20		07:49 (G_III_01)	06:20			06:09	05:10	04:42
	16:20	45	10:15 (G_III_03)	17:15	12	08:01 (G_III_01)	18:06			20:00	20:50	21:25
16	08:05		08:34 (G_III_04)	07:18		07:47 (G_III_01)	06:17			06:06	05:09	04:42
	16:21	44	10:14 (G_III_03)	17:17	16	08:03 (G_III_01)	18:08			20:01	20:51	21:26
17	08:04		08:34 (G_III_04)	07:16		07:46 (G_III_01)	06:15			06:04	05:07	04:42
	16:23	43	10:13 (G_III_03)	17:19	19	08:05 (G_III_01)	18:10			20:03	20:53	21:26
18	08:03		08:34 (G_III_04)	07:14		07:45 (G_III_01)	06:13			06:02	05:06	04:42
	16:25	38	10:10 (G_III_03)	17:21	21	08:06 (G_III_01)	18:11			20:05	20:54	21:27
19	08:02		08:32 (G_III_04)	07:12		07:44 (G_III_01)	06:11			06:00	05:04	04:42
	16:26	32	09:04 (G_III_02)	17:23	23	08:07 (G_III_01)	18:13			20:07	20:56	21:27
20	08:01		08:33 (G_III_04)	07:10		07:43 (G_III_01)	06:08			05:58	05:03	04:42
	16:28	32	09:05 (G_III_02)	17:25	24	08:07 (G_III_01)	18:15			20:08	20:57	21:27
21	08:00		08:33 (G_III_04)	07:08		07:42 (G_III_01)	06:06			05:56	05:02	04:42
	16:30	33	09:06 (G_III_02)	17:27	24	08:06 (G_III_01)	18:17			20:10	20:59	21:27
22	07:59		08:33 (G_III_04)	07:06		07:42 (G_III_01)	06:04			05:53	05:00	04:42
	16:31	34	09:07 (G_III_02)	17:28	25	08:07 (G_III_01)	18:18			20:12	21:00	21:28
23	07:57		08:32 (G_III_04)	07:04		07:42 (G_III_01)	06:01			05:51	04:59	04:43
	16:33	35	09:07 (G_III_02)	17:30	25	08:07 (G_III_01)	18:20			20:13	21:02	21:28
24	07:56		08:33 (G_III_04)	07:02		07:42 (G_III_01)	05:59			05:49	04:58	04:43
	16:35	35	09:08 (G_III_02)	17:32	25	08:07 (G_III_01)	18:22			20:15	21:03	21:28
25	07:55		08:33 (G_III_04)	07:00		07:43 (G_III_01)	05:57			05:47	04:57	04:43
	16:37	35	09:08 (G_III_02)	17:34	23	08:06 (G_III_01)	18:24			20:17	21:04	21:28
26	07:54		08:33 (G_III_04)	06:58		07:43 (G_III_01)	05:54			05:45	04:56	04:44
	16:38	36	09:09 (G_III_02)	17:36	22	08:05 (G_III_01)	18:25			20:18	21:06	21:28
27	07:52		08:33 (G_III_04)	06:56		07:43 (G_III_01)	05:52			05:43	04:54	04:44
	16:40	36	09:09 (G_III_02)	17:38	21	08:04 (G_III_01)	18:27			20:20	21:07	21:28
28	07:51		08:35 (G_III_04)	06:53		07:45 (G_III_01)	05:50			05:41	04:53	04:45
	16:42	34	09:09 (G_III_02)	17:39	17	08:02 (G_III_01)	18:29			20:22	21:08	21:28
29	07:50		08:35 (G_III_04)				06:47			05:39	04:52	04:45
	16:44	34	09:09 (G_III_02)				19:30			20:24	21:10	21:28
30	07:48		08:36 (G_III_04)				06:45			05:37	04:51	04:46
	16:46	34	09:10 (G_III_02)				19:32			20:25	21:11	21:27
31	07:47		08:37 (G_III_04)				06:43				04:50	
	16:47	32	09:09 (G_III_02)				19:34				21:12	
Sonnenscheinstunden	258			277			367			416	486	500
astr.max.mögl.Beschattung	1154			450			22					

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 42 - Friedland, Günthersdorf 46

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

	Juli	August	September	Oktober		November		Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43		06:57 16:36		07:48 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41		06:59 16:34		07:50 15:55
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38		07:00 16:33		07:51 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36		07:02 16:31	08:21 (G_III_02)	07:52 15:54
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34		07:04 16:29	08:19 (G_III_02)	07:54 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31		07:06 16:27	15 08:34 (G_III_02)	07:55 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29		07:08 16:26	19 08:36 (G_III_02)	07:56 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27		07:09 16:24	22 08:37 (G_III_02)	07:57 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25		07:11 16:22	25 08:38 (G_III_02)	07:59 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22		07:13 16:21	29 08:39 (G_III_02)	08:00 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20		07:15 16:19	32 08:08 (G_III_04)	08:01 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	08:21 (G_III_01)	07:17 16:17	33 08:07 (G_III_04)	08:02 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	11 08:32 (G_III_01)	07:18 16:16	34 08:07 (G_III_04)	08:03 15:51
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	16 08:35 (G_III_01)	07:20 16:14	35 08:41 (G_III_02)	08:04 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	19 08:17 (G_III_01)	07:22 16:13	36 08:06 (G_III_04)	08:05 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	21 08:36 (G_III_01)	07:24 16:12	36 08:42 (G_III_02)	08:06 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	23 08:37 (G_III_01)	07:25 16:10	36 08:07 (G_III_04)	08:06 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	24 08:38 (G_III_01)	07:27 16:09	35 08:42 (G_III_02)	08:07 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	24 08:13 (G_III_01)	07:29 16:08	35 08:07 (G_III_04)	08:08 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	25 08:38 (G_III_01)	07:31 16:06	35 08:42 (G_III_02)	08:09 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	25 08:14 (G_III_01)	07:32 16:05	34 08:08 (G_III_04)	08:09 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	24 08:38 (G_III_01)	07:34 16:04	33 08:41 (G_III_02)	08:10 15:53
23	05:10 21:09	05:58 20:13	06:49 19:02	07:41 17:54	23 08:13 (G_III_01)	07:36 16:03	32 08:09 (G_III_04)	08:10 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	23 08:36 (G_III_01)	07:37 16:02	31 08:41 (G_III_02)	08:11 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 16:50	21 08:14 (G_III_01)	07:39 16:01	38 09:47 (G_III_03)	08:11 15:55
26	05:14 21:04	06:03 20:06	06:54 18:55	07:46 16:48	19 07:34 (G_III_01)	07:40 16:00	43 09:51 (G_III_03)	08:11 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	07:48 16:46	15 07:17 (G_III_01)	07:42 15:59	45 09:52 (G_III_03)	08:12 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	07:50 16:44	11 07:30 (G_III_01)	07:44 15:58	45 09:54 (G_III_03)	08:12 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	07:51 16:42	1 07:24 (G_III_01)	07:45 15:57	45 09:56 (G_III_03)	08:12 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	07:53 16:40		07:47 15:56	41 09:56 (G_III_03)	08:12 15:59
31	05:22 20:57	06:12 19:55		07:55 16:38			34 09:58 (G_III_03)	08:12 16:00
Sonnenscheinstunden	503	454	381	331		266		243
astr.max.mögl.Beschattung				325		883		1475

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 Layout GIII_33 Schattenrezeptor: IO 43 - Friedland, Günthersdorf 48

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar			Februar			März			April	Mai	Jun
1	08:12		09:36 (G_III_06)	07:45		08:54 (G_III_02)	06:51		07:56 (G_III_01)	06:40	05:35	04:49
	16:01	35	10:31 (G_III_03)	16:49	23	09:17 (G_III_02)	17:41	7	08:03 (G_III_01)	19:36	20:27	21:13
2	08:12		10:01 (G_III_03)	07:43		08:56 (G_III_02)	06:49			06:38	05:33	04:49
	16:02	29	10:30 (G_III_03)	16:51	20	09:16 (G_III_02)	17:43			19:37	20:29	21:14
3	08:12		08:54 (G_III_02)	07:42		08:58 (G_III_02)	06:47			06:36	05:31	04:48
	16:03	34	10:31 (G_III_03)	16:53	17	09:15 (G_III_02)	17:45			19:39	20:30	21:15
4	08:12		08:53 (G_III_02)	07:40		09:00 (G_III_02)	06:45			06:33	05:29	04:47
	16:05	36	10:31 (G_III_03)	16:55	12	09:12 (G_III_02)	17:47			19:41	20:32	21:16
5	08:11		08:52 (G_III_02)	07:39		09:03 (G_III_02)	06:42			06:31	05:28	04:46
	16:06	39	10:31 (G_III_03)	16:57	5	09:08 (G_III_02)	17:48			19:43	20:34	21:17
6	08:11		08:51 (G_III_02)	07:37			06:40			06:29	05:26	04:46
	16:07	40	10:31 (G_III_03)	16:59			17:50			19:44	20:35	21:18
7	08:11		08:43 (G_III_04)	07:35			06:38			06:27	05:24	04:45
	16:08	45	10:31 (G_III_03)	17:00			17:52			19:46	20:37	21:19
8	08:10		08:42 (G_III_04)	07:33			06:36			06:24	05:22	04:45
	16:10	49	10:31 (G_III_03)	17:02			17:54			19:48	20:39	21:20
9	08:10		08:41 (G_III_04)	07:32			06:33			06:22	05:20	04:44
	16:11	49	10:30 (G_III_03)	17:04			17:56			19:49	20:40	21:21
10	08:09		08:40 (G_III_04)	07:30			06:31			06:20	05:19	04:44
	16:12	49	10:29 (G_III_03)	17:06			17:57			19:51	20:42	21:22
11	08:09		08:39 (G_III_04)	07:28			06:29			06:17	05:17	04:43
	16:14	49	10:28 (G_III_03)	17:08			17:59			19:53	20:43	21:23
12	08:08		08:39 (G_III_04)	07:26		07:57 (G_III_01)	06:27			06:15	05:15	04:43
	16:15	48	10:28 (G_III_03)	17:10	8	08:05 (G_III_01)	18:01			19:55	20:45	21:23
13	08:07		08:39 (G_III_04)	07:24		07:54 (G_III_01)	06:24			06:13	05:14	04:43
	16:17	46	10:27 (G_III_03)	17:12	14	08:08 (G_III_01)	18:03			19:56	20:47	21:24
14	08:06		08:39 (G_III_04)	07:22		07:52 (G_III_01)	06:22			06:11	05:12	04:42
	16:18	41	10:24 (G_III_03)	17:14	18	08:10 (G_III_01)	18:04			19:58	20:48	21:25
15	08:06		08:38 (G_III_04)	07:20		07:51 (G_III_01)	06:20			06:09	05:10	04:42
	16:20	36	09:14 (G_III_02)	17:15	20	08:11 (G_III_01)	18:06			20:00	20:50	21:25
16	08:05		08:38 (G_III_04)	07:18		07:50 (G_III_01)	06:17			06:06	05:09	04:42
	16:21	37	09:15 (G_III_02)	17:17	22	08:12 (G_III_01)	18:08			20:01	20:51	21:26
17	08:04		08:39 (G_III_04)	07:16		07:49 (G_III_01)	06:15			06:04	05:07	04:42
	16:23	37	09:16 (G_III_02)	17:19	24	08:13 (G_III_01)	18:10			20:03	20:53	21:26
18	08:03		08:39 (G_III_04)	07:14		07:49 (G_III_01)	06:13			06:02	05:06	04:42
	16:25	38	09:17 (G_III_02)	17:21	24	08:13 (G_III_01)	18:11			20:05	20:54	21:27
19	08:02		08:38 (G_III_04)	07:12		07:48 (G_III_01)	06:10			06:00	05:04	04:42
	16:26	39	09:17 (G_III_02)	17:23	26	08:14 (G_III_01)	18:13			20:07	20:56	21:27
20	08:01		08:38 (G_III_04)	07:10		07:48 (G_III_01)	06:08			05:58	05:03	04:42
	16:28	39	09:17 (G_III_02)	17:25	26	08:14 (G_III_01)	18:15			20:08	20:57	21:27
21	08:00		08:39 (G_III_04)	07:08		07:47 (G_III_01)	06:06			05:56	05:02	04:42
	16:30	39	09:18 (G_III_02)	17:27	26	08:13 (G_III_01)	18:17			20:10	20:59	21:27
22	07:59		08:39 (G_III_04)	07:06		07:47 (G_III_01)	06:04			05:53	05:00	04:42
	16:31	40	09:19 (G_III_02)	17:28	26	08:13 (G_III_01)	18:18			20:12	21:00	21:28
23	07:57		08:39 (G_III_04)	07:04		07:48 (G_III_01)	06:01			05:51	04:59	04:43
	16:33	40	09:19 (G_III_02)	17:30	25	08:13 (G_III_01)	18:20			20:13	21:02	21:28
24	07:56		08:40 (G_III_04)	07:02		07:48 (G_III_01)	05:59			05:49	04:58	04:43
	16:35	39	09:19 (G_III_02)	17:32	24	08:12 (G_III_01)	18:22			20:15	21:03	21:28
25	07:55		08:40 (G_III_04)	07:00		07:49 (G_III_01)	05:57			05:47	04:57	04:43
	16:37	39	09:19 (G_III_02)	17:34	23	08:12 (G_III_01)	18:24			20:17	21:04	21:28
26	07:54		08:41 (G_III_04)	06:58		07:49 (G_III_01)	05:54			05:45	04:56	04:44
	16:38	38	09:19 (G_III_02)	17:36	21	08:10 (G_III_01)	18:25			20:18	21:06	21:28
27	07:52		08:41 (G_III_04)	06:56		07:50 (G_III_01)	05:52			05:43	04:54	04:44
	16:40	38	09:19 (G_III_02)	17:38	18	08:08 (G_III_01)	18:27			20:20	21:07	21:28
28	07:51		08:43 (G_III_04)	06:53		07:53 (G_III_01)	05:50			05:41	04:53	04:45
	16:42	36	09:19 (G_III_02)	17:39	13	08:06 (G_III_01)	18:29			20:22	21:08	21:28
29	07:50		08:44 (G_III_04)				06:47			05:39	04:52	04:45
	16:44	35	09:19 (G_III_02)				19:30			20:24	21:10	21:28
30	07:48		08:46 (G_III_04)				06:45			05:37	04:51	04:46
	16:46	33	09:19 (G_III_02)				19:32			20:25	21:11	21:27
31	07:47		08:47 (G_III_04)				06:43				04:50	
	16:47	31	09:18 (G_III_02)				19:34				21:12	
Sonnenscheinstunden	258			277			367	7		416	486	500
astr.max.mögl.Beschattung	1223			435								

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)	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)
	Minuten mit Schatten	

SHADOW - Kalender

Berechnung: ZB Layout GIII_33 Schattenrezeptor: IO 43 - Friedland, Günthersdorf 48

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

	Juli	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	06:57 16:36	07:48 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	06:59 16:34	07:49 15:55
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:00 16:33	07:51 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:52 15:54
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	07:04 16:29	07:54 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:06 16:27	07:55 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:08 16:26	07:56 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	07:09 16:24	07:57 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:11 16:22	07:59 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:13 16:21	08:00 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:15 16:19	08:01 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:17 16:17	08:02 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:18 16:16	08:03 15:51
14	04:58 21:19	05:44 20:31	06:34 19:23	07:25 18:13	07:20 16:14	08:04 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	07:22 16:13	08:05 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:24 16:12	08:06 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	07:25 16:10	08:06 15:51
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	07:27 16:09	08:07 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:02	07:29 16:08	08:08 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	07:31 16:06	08:09 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 16:05	08:09 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:34 16:04	08:10 15:53
23	05:10 21:09	05:58 20:13	06:49 19:02	07:41 17:54	07:36 16:03	08:10 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 16:02	08:11 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 17:50	07:39 16:01	08:11 15:55
26	05:14 21:04	06:03 20:06	06:54 18:55	07:46 17:48	07:40 16:00	08:11 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	07:48 17:46	07:42 15:59	08:12 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	07:50 17:44	07:44 15:58	08:12 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	07:51 17:42	07:45 15:57	08:12 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	07:53 17:40	07:47 15:56	08:12 15:59
31	05:22 20:57	06:12 19:55		07:55 17:38		08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
astr.max.mögl.Beschattung				364	852	1331

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 Layout GIII_33 Schattenrezeptor: IO 44 - Friedland, Günthersdorf 21

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	08:12 16:01 11	08:45 (G_III_08) 16:49 28	08:37 (G_III_05) 17:41 31	07:39 (G_III_03) 19:36 31	05:35 20:27 21:13	04:50 20:27 21:13
2	08:12 16:02 12	08:44 (G_III_08) 16:51 27	08:38 (G_III_05) 17:43 36	07:18 (G_III_02) 19:37 36	05:33 20:29 21:14	04:49 20:29 21:14
3	08:12 16:03 13	08:45 (G_III_08) 16:53 26	08:39 (G_III_05) 17:45 42	07:14 (G_III_02) 19:39 42	05:31 20:30 21:15	04:48 20:30 21:15
4	08:12 16:05 14	08:45 (G_III_08) 16:55 25	08:39 (G_III_05) 17:47 46	07:12 (G_III_02) 19:41 46	05:29 20:32 21:16	04:47 20:32 21:16
5	08:11 16:06 15	08:59 (G_III_08) 16:57 32	08:07 (G_III_06) 17:49 46	07:11 (G_III_02) 19:43 46	05:28 20:34 21:17	04:46 20:34 21:17
6	08:11 16:07 16	08:45 (G_III_08) 16:59 35	08:04 (G_III_06) 17:50 46	07:09 (G_III_02) 19:44 46	05:26 20:35 21:18	04:46 20:35 21:18
7	08:11 16:08 17	09:01 (G_III_08) 17:01 36	08:04 (G_III_06) 17:52 45	07:09 (G_III_02) 19:46 45	05:24 20:37 21:19	04:45 20:37 21:19
8	08:10 16:10 17	08:45 (G_III_08) 17:02 36	08:02 (G_III_06) 17:54 42	07:08 (G_III_02) 19:48 42	05:22 20:39 21:20	04:45 20:39 21:20
9	08:10 16:11 18	08:45 (G_III_08) 17:04 32	08:02 (G_III_06) 17:56 38	07:08 (G_III_02) 19:49 38	05:20 20:40 21:21	04:44 20:40 21:21
10	08:09 16:12 19	08:44 (G_III_08) 17:06 28	08:01 (G_III_06) 17:57 29	07:08 (G_III_02) 19:51 29	05:19 20:42 21:22	04:44 20:42 21:22
11	08:09 16:14 20	08:44 (G_III_08) 17:08 20	08:01 (G_III_06) 17:59 22	07:08 (G_III_02) 19:53 22	05:17 20:43 21:23	04:43 20:43 21:23
12	08:08 16:15 20	08:45 (G_III_08) 17:10 20	08:01 (G_III_06) 18:01 20	07:09 (G_III_02) 19:55 20	05:15 20:45 21:23	04:43 20:45 21:23
13	08:07 16:17 21	09:05 (G_III_08) 17:12 20	08:21 (G_III_06) 18:03 20	07:29 (G_III_02) 19:56 20	05:14 20:47 21:24	04:43 20:47 21:24
14	08:07 16:18 20	08:46 (G_III_08) 17:14 20	08:01 (G_III_06) 18:05 16	07:10 (G_III_02) 19:58 16	05:12 20:48 21:25	04:42 20:48 21:25
15	08:06 16:20 21	09:06 (G_III_08) 17:16 20	08:01 (G_III_06) 18:06 13	07:12 (G_III_02) 20:00 13	05:11 20:50 21:25	04:42 20:50 21:25
16	08:05 16:21 21	08:46 (G_III_08) 17:17 18	08:02 (G_III_06) 18:08 6	07:25 (G_III_02) 20:06 6	05:09 20:51 21:26	04:42 20:51 21:26
17	08:04 16:23 22	09:07 (G_III_08) 17:19 16	08:20 (G_III_06) 18:10 16	07:14 (G_III_02) 20:03 20:03	05:07 20:53 21:26	04:42 20:53 21:26
18	08:03 16:25 25	08:43 (G_III_05) 17:21 14	08:04 (G_III_06) 18:12 7	07:08 (G_III_02) 20:05 7	05:06 20:54 21:27	04:42 20:54 21:27
19	08:02 16:26 26	09:08 (G_III_08) 17:23 19	07:51 (G_III_03) 18:13 13	06:33 (G_III_01) 20:07 13	05:05 20:56 21:27	04:41 20:56 21:27
20	08:01 16:28 27	08:40 (G_III_05) 17:25 16	08:16 (G_III_06) 18:15 15	06:46 (G_III_01) 20:08 15	05:03 20:57 21:27	04:42 20:57 21:27
21	08:00 16:30 28	09:07 (G_III_08) 17:27 20	07:48 (G_III_03) 18:17 17	06:32 (G_III_01) 20:10 17	05:02 20:59 21:27	04:42 20:59 21:27
22	07:59 16:31 29	08:39 (G_III_05) 17:29 23	08:04 (G_III_06) 18:18 19	06:47 (G_III_01) 20:12 19	05:00 21:00 21:28	04:42 21:00 21:28
23	07:57 16:33 29	09:08 (G_III_08) 17:30 26	08:05 (G_III_03) 18:20 19	06:29 (G_III_01) 20:13 19	04:59 21:02 21:28	04:43 21:02 21:28
24	07:56 16:35 28	08:38 (G_III_05) 17:32 28	07:42 (G_III_03) 18:22 19	06:29 (G_III_01) 20:15 19	04:58 21:03 21:28	04:43 21:03 21:28
25	07:55 16:37 28	09:06 (G_III_08) 17:36 30	08:09 (G_III_03) 18:25 17	06:29 (G_III_01) 20:18 17	04:57 21:06 21:28	04:43 21:06 21:28
26	07:54 16:38 27	08:37 (G_III_05) 17:38 30	07:41 (G_III_03) 18:27 16	06:29 (G_III_01) 20:20 16	04:56 21:07 21:28	04:44 21:07 21:28
27	07:52 16:40 26	09:04 (G_III_08) 17:39 30	08:10 (G_III_03) 18:29 13	06:46 (G_III_01) 20:22 13	21:08 21:08 21:28	04:44 21:08 21:28
28	07:51 16:42 27	08:37 (G_III_05) 17:39 30	07:39 (G_III_03) 18:29 13	06:30 (G_III_01) 20:24 8	04:53 21:10 21:28	04:45 21:10 21:28
29	07:50 16:44 27	09:04 (G_III_08) 17:39 30	08:09 (G_III_03) 18:29 13	07:33 (G_III_01) 20:25 8	04:52 21:11 21:27	04:45 21:11 21:27
30	07:48 16:46 28	08:37 (G_III_05) 17:39 30	07:41 (G_III_03) 18:29 13	06:47 (G_III_01) 20:17 18	04:51 21:12 21:27	04:46 21:12 21:27
31	07:47 16:47 28	09:05 (G_III_08) 17:39 30	08:09 (G_III_03) 18:29 13	07:41 (G_III_01) 20:17 18	04:50 21:12 21:27	04:46 21:12 21:27
Sonnenscheinstunden	258	277	367	416	486	500
astr.max.mögl.Beschattung	680	703	679			

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 Layout GIII_33 Schattenrezeptor: IO 44 - Friedland, Günthersdorf 21
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

	Juli	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:48 (G.III_02) 16:36	07:31 (G.III_06) 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	07:47 (G.III_02) 16:35	07:31 (G.III_06) 15:55
3	04:48 21:26	05:26 20:52	06:17 19:48	07:06 18:38	07:46 (G.III_02) 16:33	07:32 (G.III_06) 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:45 (G.III_02) 16:31	07:33 (G.III_06) 15:54
5	04:49 21:26	05:29 20:48	06:20 19:44	07:09 18:34	07:45 (G.III_02) 16:29	07:35 (G.III_06) 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:45 (G.III_02) 16:27	07:38 (G.III_06) 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	07:45 (G.III_02) 16:26	07:38 (G.III_06) 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	07:46 (G.III_02) 16:24	07:39 (G.III_06) 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	07:47 (G.III_02) 16:22	07:40 (G.III_06) 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:47 (G.III_02) 16:21	07:41 (G.III_06) 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	07:49 (G.III_02) 16:19	07:43 (G.III_06) 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	08:12 (G.III_03) 16:18	08:08 (G.III_05) 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	08:12 (G.III_03) 16:16	08:09 (G.III_05) 15:51
14	04:58 21:19	05:44 20:31	06:35 19:23	07:25 18:13	08:12 (G.III_03) 16:15	08:09 (G.III_05) 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	08:11 (G.III_03) 16:13	08:10 (G.III_05) 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	08:12 (G.III_03) 16:12	08:10 (G.III_05) 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	08:12 (G.III_03) 16:10	08:11 (G.III_05) 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	08:13 (G.III_03) 16:09	08:12 (G.III_05) 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	08:14 (G.III_03) 16:08	08:13 (G.III_05) 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	08:15 (G.III_03) 16:06	08:14 (G.III_05) 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	08:17 (G.III_03) 16:05	08:14 (G.III_05) 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	08:18 (G.III_03) 16:04	08:16 (G.III_05) 15:53
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	08:21 (G.III_03) 16:03	08:18 (G.III_05) 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	08:33 (G.III_06) 16:02	08:20 (G.III_05) 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 16:50	07:32 (G.III_06) 16:01	08:23 (G.III_05) 15:55
26	05:14 21:04	06:03 20:06	06:54 18:55	06:46 16:48	07:31 (G.III_06) 16:00	08:24 (G.III_08) 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 16:46	07:31 (G.III_06) 15:59	08:25 (G.III_08) 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	06:50 16:44	07:30 (G.III_06) 15:58	08:26 (G.III_08) 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	06:51 16:42	07:30 (G.III_06) 15:57	08:25 (G.III_08) 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40	07:30 (G.III_06) 15:56	08:26 (G.III_08) 15:59
31	05:22 20:57	06:12 19:55		06:55 16:38	07:30 (G.III_06) 15:51	08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
astr. max. mögl. Beschattung			229	866	815	241

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 Layout GII_33 Schattenrezeptor: IO 45 - Weichensdorf, Dorfstraße 3
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

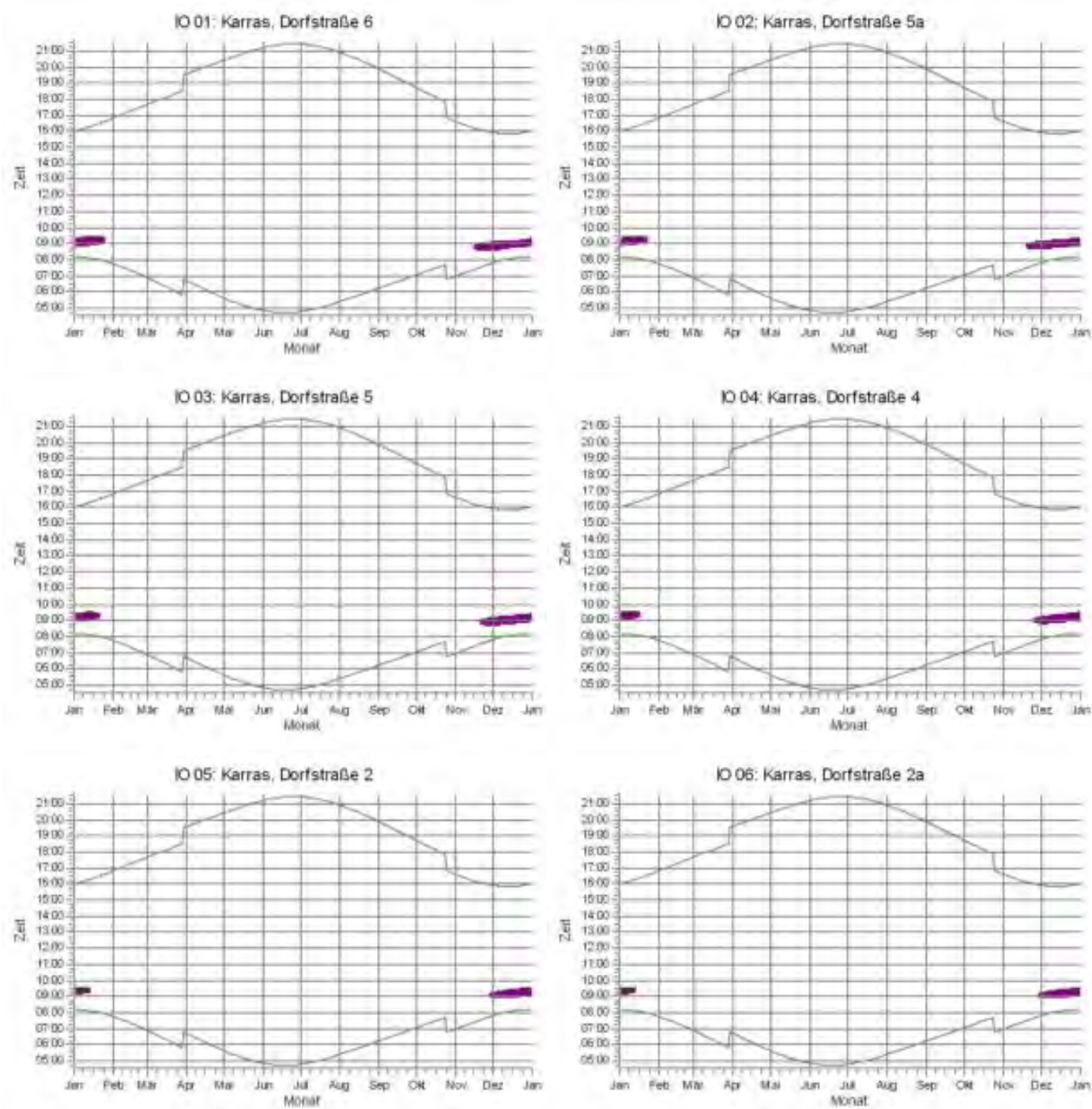
	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:12 16:01	07:45 16:49	06:51 17:41	16:57 (G.III_01) 17:15 (G.III_01)	06:40 19:35	05:35 20:27	04:49 21:13	04:46 21:27	05:23 20:55	06:13 19:53	07:02 18:43	06:57 18:36
2	08:12 16:02	07:43 16:51	06:49 17:43	16:56 (G.III_01) 17:16 (G.III_01)	06:38 19:37	05:33 20:28	04:48 21:14	04:47 21:27	05:24 20:53	06:15 19:50	07:04 18:40	06:58 18:34
3	08:12 16:03	07:42 16:53	06:47 17:45	16:56 (G.III_01) 17:16 (G.III_01)	06:36 19:39	05:31 20:30	04:48 21:15	04:48 21:26	05:26 20:52	06:16 19:48	07:06 18:38	07:00 18:32
4	08:11 16:04	07:40 16:55	06:45 17:47	16:56 (G.III_01) 17:16 (G.III_01)	06:33 19:41	05:29 20:32	04:47 21:16	04:48 21:26	05:28 20:50	06:18 19:46	07:07 18:36	17:38 (G.III_01) 17:47 (G.III_01)
5	08:11 16:06	07:38 16:57	06:42 17:48	16:56 (G.III_01) 17:16 (G.III_01)	06:31 19:42	05:27 20:33	04:46 21:17	04:49 21:25	05:29 20:48	06:20 19:43	07:09 18:33	17:36 (G.III_01) 17:49 (G.III_01)
6	08:11 16:07	07:37 16:58	06:40 17:50	16:56 (G.III_01) 17:15 (G.III_01)	06:29 19:44	05:26 20:35	04:46 21:18	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	17:33 (G.III_01) 17:50 (G.III_01)
7	08:10 16:08	07:35 17:00	06:38 17:52	16:57 (G.III_01) 17:14 (G.III_01)	06:26 19:46	05:24 20:37	04:45 21:19	04:51 21:24	05:32 20:44	06:23 19:39	07:13 18:29	17:32 (G.III_01) 17:51 (G.III_01)
8	08:10 16:09	07:33 17:02	06:36 17:54	16:58 (G.III_01) 17:13 (G.III_01)	06:24 19:47	05:22 20:38	04:44 21:20	04:52 21:24	05:34 20:43	06:25 19:36	07:14 18:27	17:31 (G.III_01) 17:51 (G.III_01)
9	08:10 16:11	07:31 17:04	06:33 17:55	16:59 (G.III_01) 17:10 (G.III_01)	06:22 19:49	05:20 20:40	04:44 21:21	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:24	17:31 (G.III_01) 17:51 (G.III_01)
10	08:09 16:12	07:30 17:06	06:31 17:57	17:02 (G.III_01) 17:07 (G.III_01)	06:20 19:51	05:18 20:42	04:44 21:22	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	17:30 (G.III_01) 17:50 (G.III_01)
11	08:08 16:14	07:28 17:08	06:29 17:59	06:17 19:53	05:17 20:43	04:43 21:22	04:55 21:21	05:39 20:37	06:29 19:30	07:19 18:20	17:30 (G.III_01) 17:50 (G.III_01)	07:15 18:19
12	08:08 16:15	07:26 17:10	06:26 18:01	06:15 19:54	05:15 20:45	04:43 21:23	04:56 21:21	05:40 20:35	06:31 19:27	07:21 18:18	17:30 (G.III_01) 17:50 (G.III_01)	07:16 18:17
13	08:07 16:17	07:24 17:12	06:24 18:03	06:13 19:56	05:13 20:46	04:42 21:24	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:15	17:30 (G.III_01) 17:48 (G.III_01)	07:18 18:16
14	08:06 16:18	07:22 17:13	06:22 18:04	06:11 19:58	05:12 20:48	04:42 21:24	04:58 21:19	05:44 20:31	06:34 19:23	07:25 18:13	17:31 (G.III_01) 17:44 (G.III_01)	07:20 18:14
15	08:05 16:20	07:20 17:15	06:20 18:06	06:08 19:59	05:10 20:50	04:42 21:25	04:59 21:18	05:45 20:29	06:36 19:20	07:26 18:11	17:32 (G.III_01) 17:42 (G.III_01)	07:22 18:13
16	08:05 16:21	07:18 17:17	06:17 18:08	06:06 20:01	05:09 20:51	04:42 21:25	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	17:40 (G.III_01) 17:51 (G.III_01)	07:23 18:11
17	08:04 16:23	07:16 17:19	06:15 18:10	06:04 20:03	05:07 20:53	04:42 21:26	05:02 21:16	05:48 20:25	06:39 19:15	07:30 18:07	17:40 (G.III_01) 17:51 (G.III_01)	07:25 18:10
18	08:03 16:24	07:14 17:21	06:13 18:11	06:02 20:05	05:06 20:54	04:42 21:26	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:04	17:40 (G.III_01) 17:51 (G.III_01)	07:27 18:09
19	08:02 16:26	07:12 17:23	06:10 18:13	06:00 20:06	05:04 20:56	04:42 21:27	05:04 21:13	05:52 20:21	06:43 19:11	07:33 18:02	17:40 (G.III_01) 17:51 (G.III_01)	07:29 18:08
20	08:01 16:28	07:10 17:25	06:08 18:15	05:57 20:08	05:03 20:57	04:42 21:27	05:06 21:12	05:53 20:19	06:44 19:08	07:35 18:00	17:40 (G.III_01) 17:51 (G.III_01)	07:30 18:08
21	08:00 16:29	07:08 17:26	06:06 18:16	05:55 20:10	05:02 20:59	04:42 21:27	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	17:40 (G.III_01) 17:51 (G.III_01)	07:32 18:09
22	07:58 16:31	07:06 17:28	06:03 18:18	05:53 20:11	05:00 21:00	04:42 21:27	05:08 21:10	05:57 20:15	06:47 19:04	07:39 17:56	17:40 (G.III_01) 17:51 (G.III_01)	07:34 18:10
23	07:57 16:33	07:04 17:30	06:01 18:20	05:51 20:13	04:59 21:01	04:42 21:28	05:10 21:08	05:58 20:12	06:49 19:01	07:40 17:54	17:40 (G.III_01) 17:51 (G.III_01)	07:35 18:10
24	07:56 16:35	07:02 17:32	05:59 18:22	05:49 20:15	04:58 21:03	04:43 21:28	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	17:40 (G.III_01) 17:51 (G.III_01)	07:37 18:10
25	07:55 16:36	07:00 17:34	05:56 18:23	05:47 20:17	04:57 21:04	04:43 21:28	05:13 21:06	06:02 20:08	06:52 18:57	07:44 18:50	17:40 (G.III_01) 17:51 (G.III_01)	07:39 18:11
26	07:53 16:38	06:58 17:36	05:54 18:25	05:45 20:18	04:55 21:06	04:44 21:28	05:14 21:04	06:03 20:06	06:54 18:54	07:46 18:48	17:40 (G.III_01) 17:51 (G.III_01)	07:40 18:11
27	07:52 16:40	06:55 17:37	05:52 18:27	05:43 20:20	04:54 21:07	04:44 21:28	05:15 21:03	06:05 20:04	06:56 18:52	07:48 18:46	17:40 (G.III_01) 17:51 (G.III_01)	07:42 18:11
28	07:51 16:42	06:53 17:39	05:49 18:29	05:41 20:22	04:53 21:08	04:44 21:28	05:17 21:01	06:06 20:01	06:57 18:50	07:49 18:44	17:40 (G.III_01) 17:51 (G.III_01)	07:43 18:12
29	07:49 16:44	07:49 17:44	06:47 19:30	05:39 20:23	04:52 21:09	04:45 21:27	05:18 21:00	06:08 19:59	06:59 18:47	06:51 18:42	17:40 (G.III_01) 17:51 (G.III_01)	07:45 18:12
30	07:48 16:45	07:48 17:45	06:45 19:32	05:37 20:25	04:51 21:11	04:46 21:27	05:20 20:58	06:10 19:57	07:01 18:45	06:53 18:40	17:40 (G.III_01) 17:51 (G.III_01)	07:46 18:12
31	07:46 16:47	07:46 17:46	06:42 19:34	05:35 20:27	04:50 21:12	04:45 21:27	05:21 20:57	06:11 19:55	07:02 18:46	06:55 18:38	17:40 (G.III_01) 17:51 (G.III_01)	07:47 18:13
Sonnenscheinstunden	258	277	367	416	486	500	503	454	381	331	204	266
astr.max.mögl.Beschattung												243

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 - Grafischer Kalender

Berechnung: ZB Layout GII_33

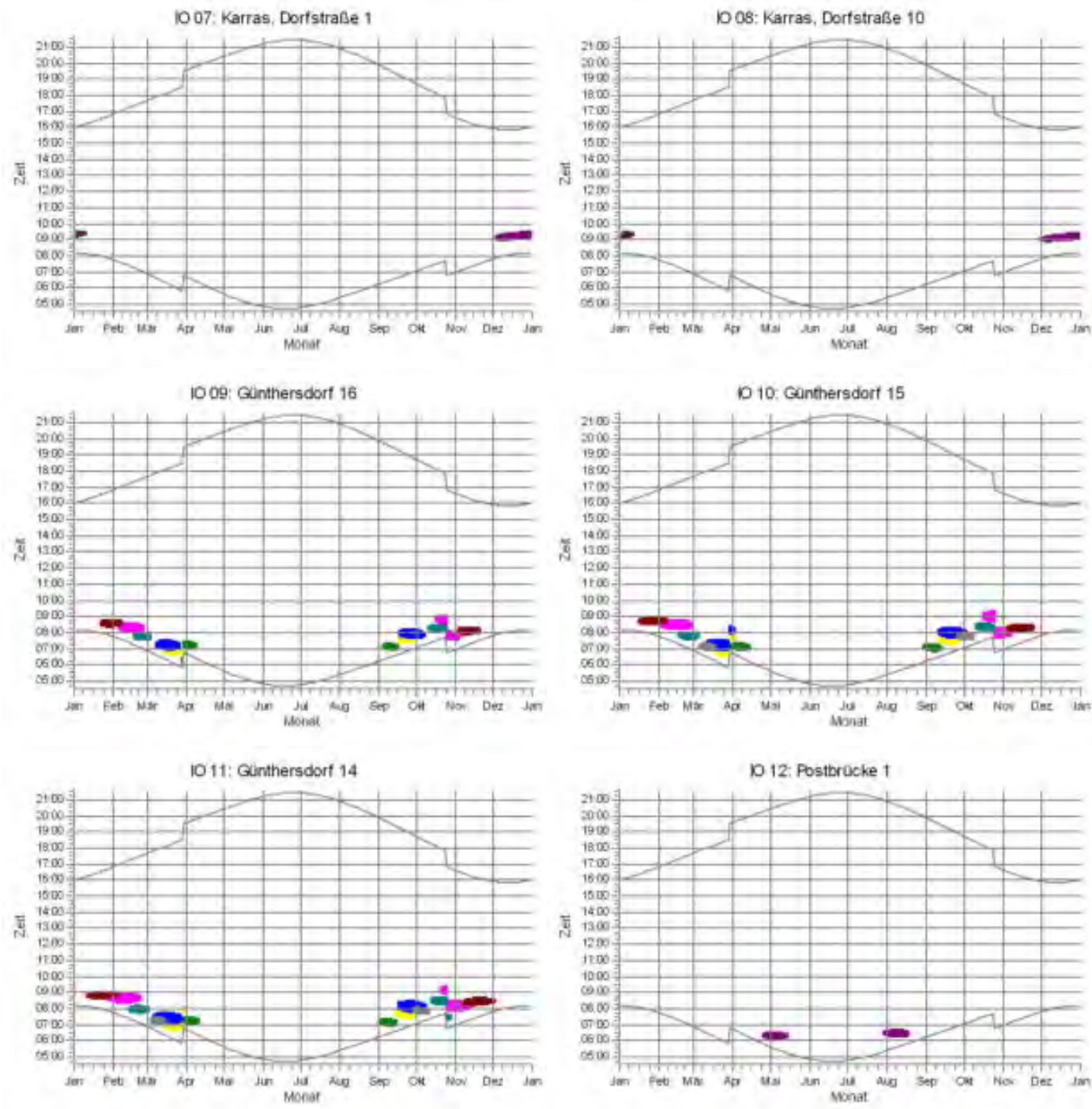


WEA

G_II_13: VESTAS V150 6000 150.0 !-! NH: 169,0 m (Ges:244,0 m) (650)

SHADOW - Grafischer Kalender

Berechnung: ZB Layout GII_33



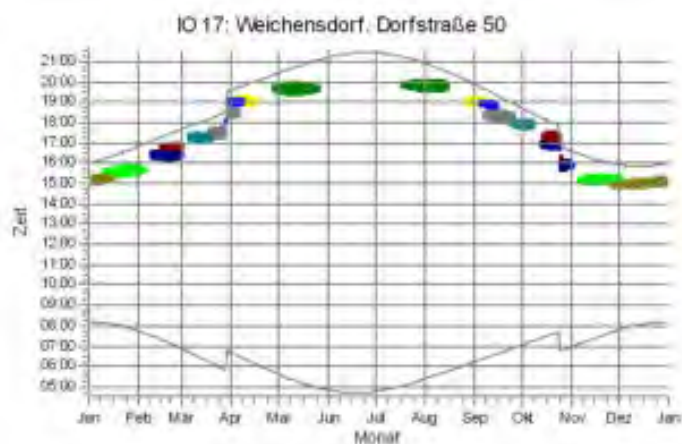
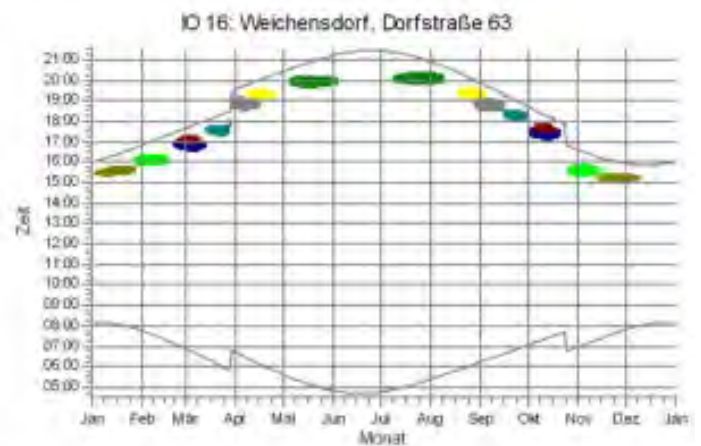
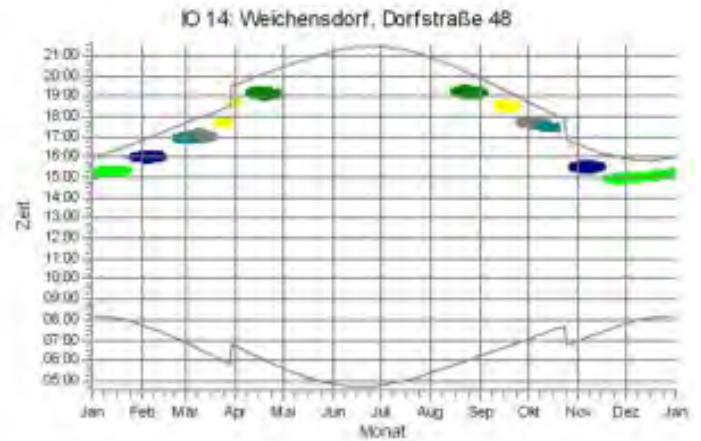
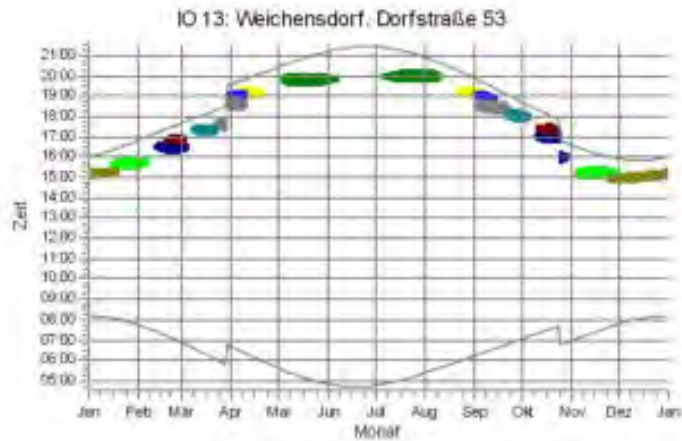
WEA

	G_III_01: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (651)
	G_III_02: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (652)
	G_III_03: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (653)
	G_III_04: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (654)

	G_III_05: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (655)
	G_III_06: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (656)
	G_III_08: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (658)
	G_II_13: VESTAS V150 6000 150.0 I-! NH: 169,0 m (Ges:244,0 m) (650)

SHADOW - Grafischer Kalender

Berechnung: ZB Layout GII_33



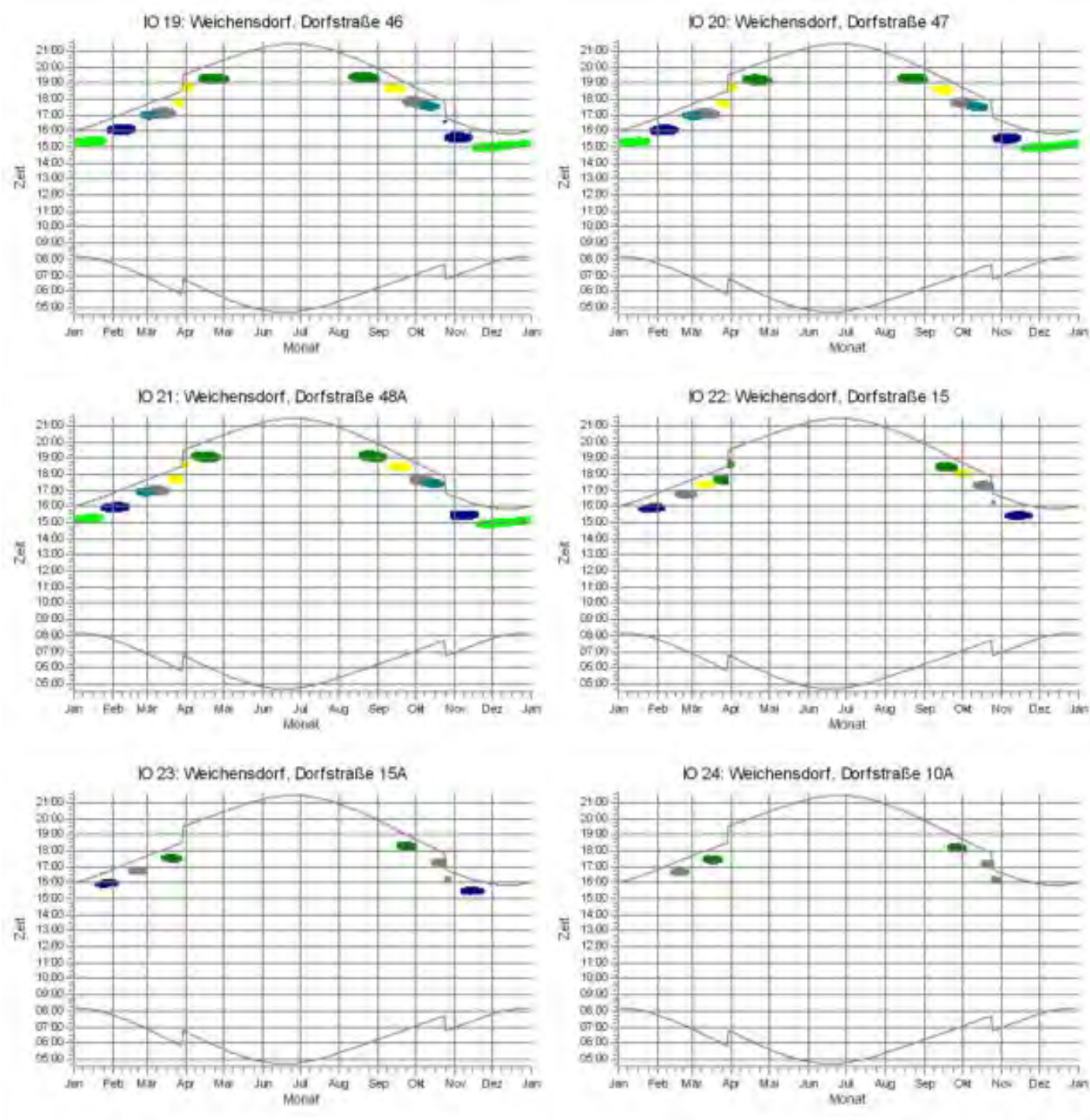
WEA

	G_III_01: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (651)
	G_III_02: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (652)
	G_III_03: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (653)
	G_III_04: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (654)
	G_III_06: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (656)

	G_III_07: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (657)
	G_III_08: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (658)
	G_III_10: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (659)
	G_II_04: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (649)

SHADOW - Grafischer Kalender

Berechnung: ZB Layout GII_33

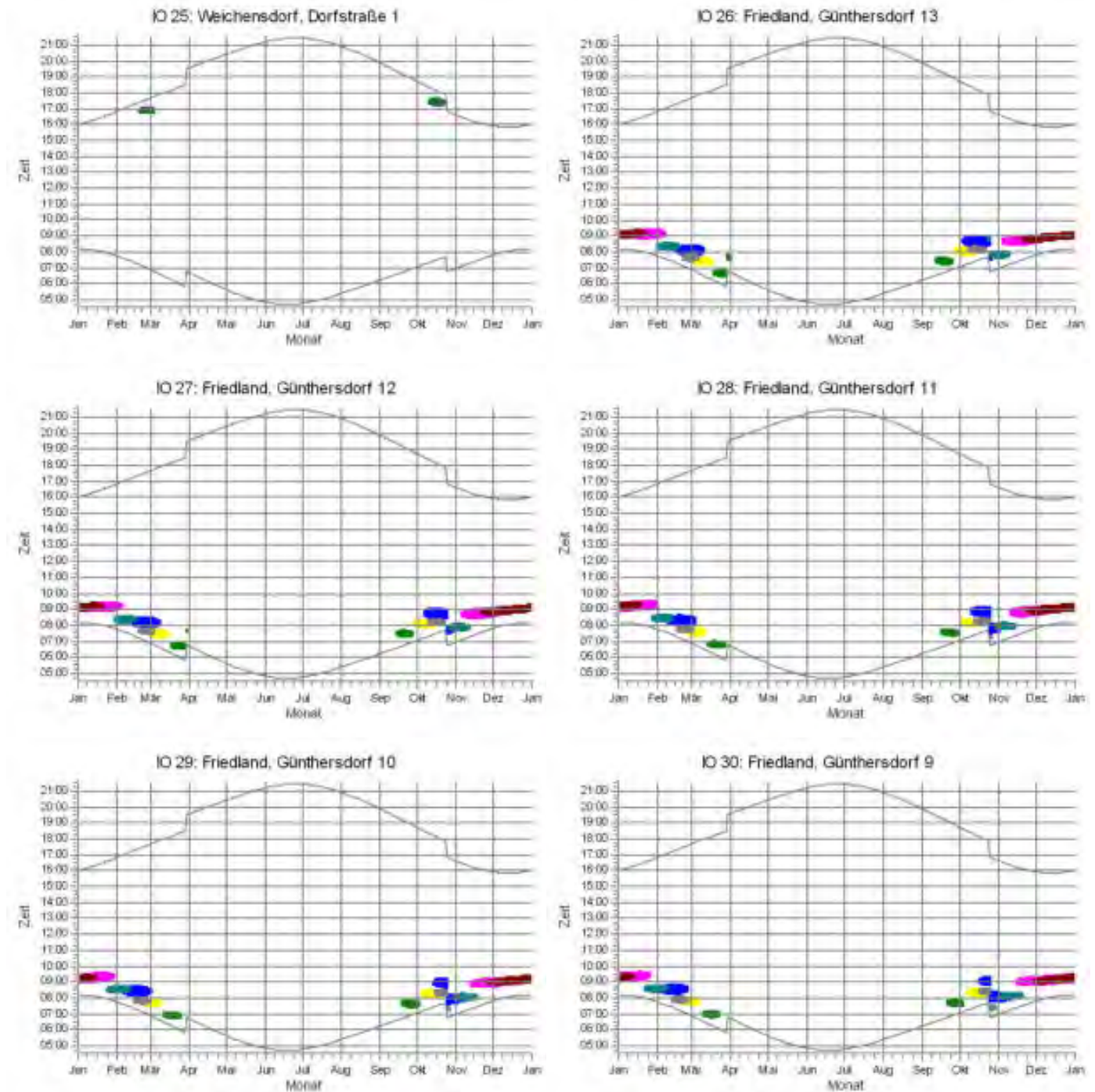


WEA

	G_III_01: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (651)		G_III_06: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (656)
	G_III_02: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (652)		G_III_07: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (657)
	G_III_04: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (654)		G_III_10: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (659)

SHADOW - Grafischer Kalender

Berechnung: ZB Layout GII_33



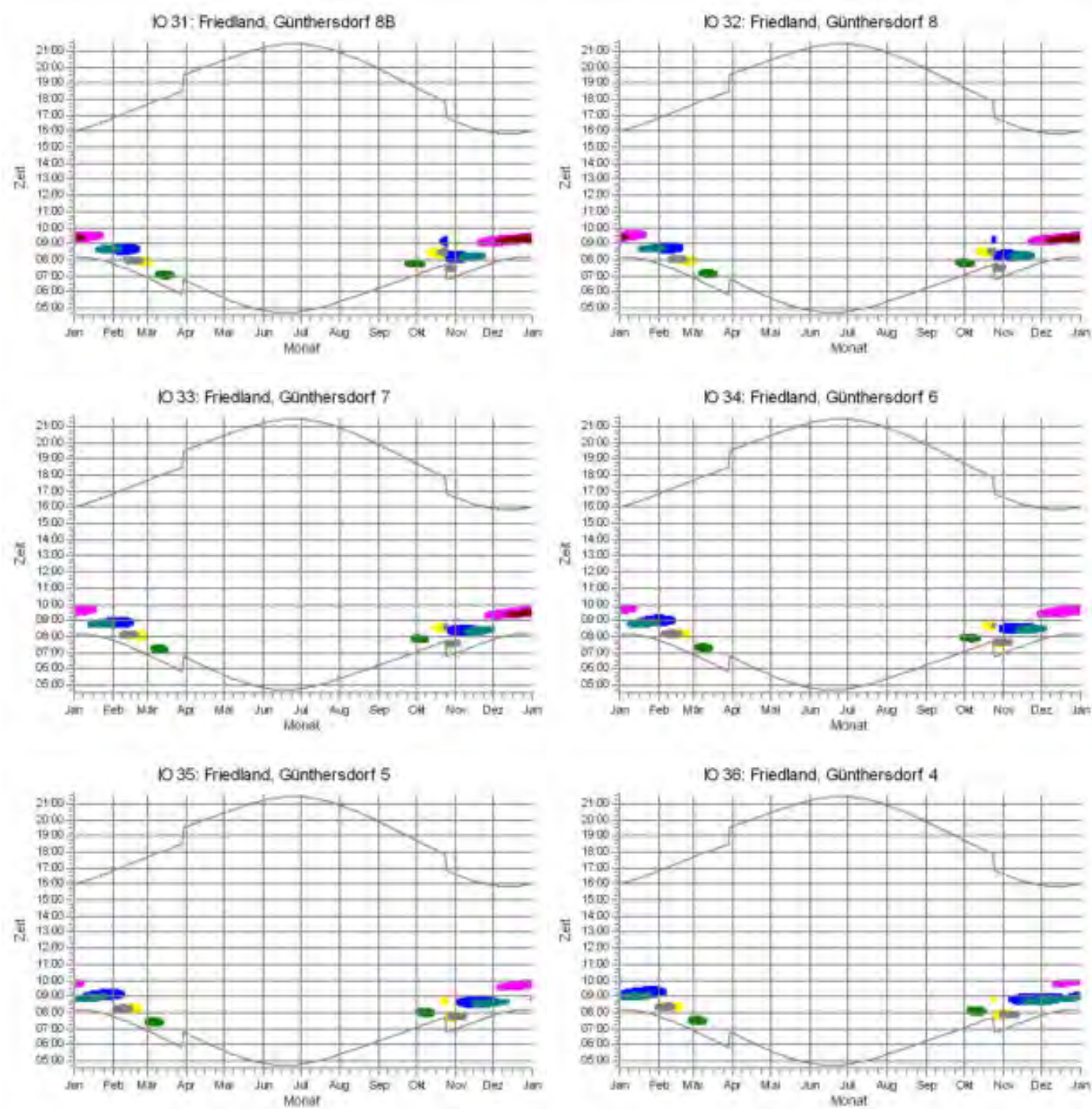
WEA

	G_III_01: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (651)
	G_III_02: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (652)
	G_III_03: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (653)
	G_III_04: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (654)

	G_III_05: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (655)
	G_III_06: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (656)
	G_III_08: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (658)

SHADOW - Grafischer Kalender

Berechnung: ZB Layout GII_33

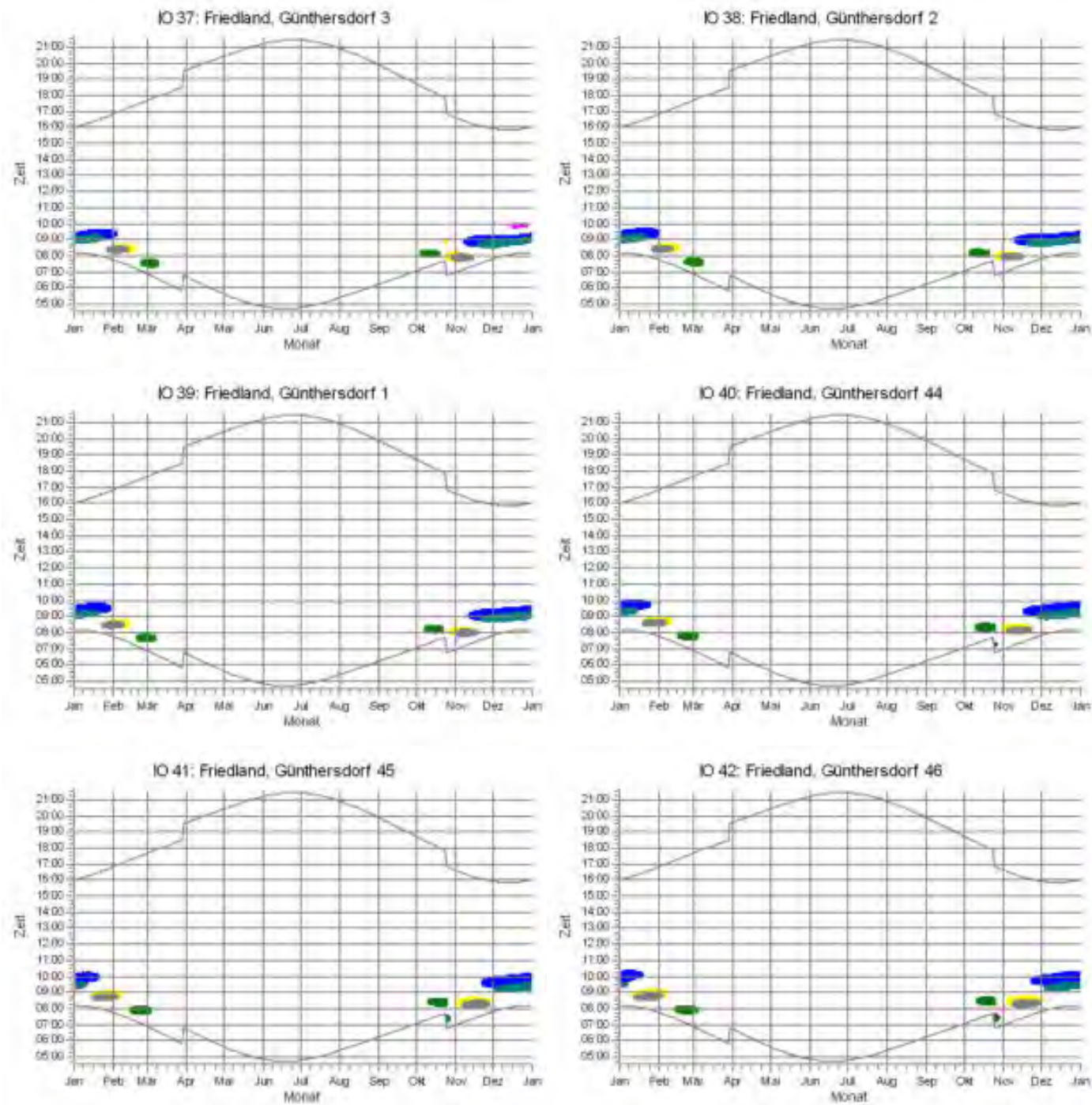


WEA

	G_III_01: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (651)		G_III_05: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (655)
	G_III_02: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (652)		G_III_06: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (656)
	G_III_03: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (653)		G_III_08: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (658)
	G_III_04: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (654)		

SHADOW - Grafischer Kalender

Berechnung: ZB Layout GII_33

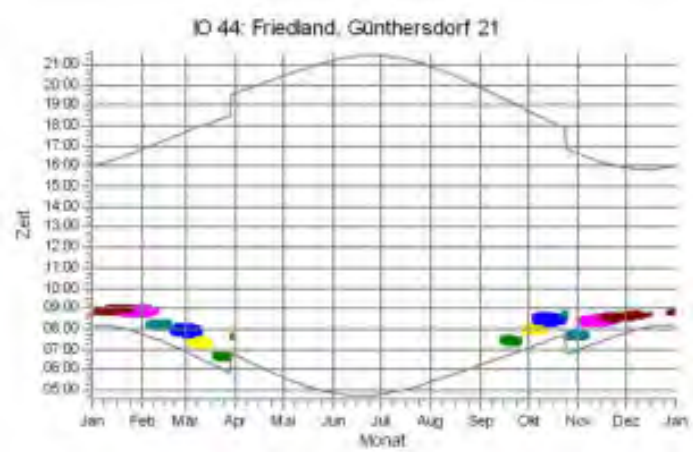
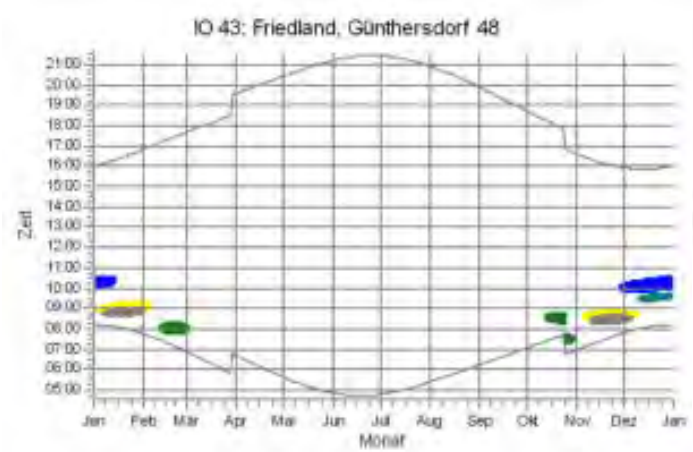


WEA

	G_III_01: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (651)		G_III_04: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (654)
	G_III_02: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (652)		G_III_05: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (655)
	G_III_03: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (653)		G_III_06: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (656)

SHADOW - Grafischer Kalender

Berechnung: ZB Layout GII_33



WEA

	G_III_01: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (651)
	G_III_02: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (652)
	G_III_03: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (653)
	G_III_04: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (654)

	G_III_05: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (655)
	G_III_06: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (656)
	G_III_08: VESTAS V162 7200 162.0 I-! NH: 169,0 m (Ges:250,0 m) (658)

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_01 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (651)

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	08:12 16:01	07:45 16:49	06:51 16:46-17:15/29 17:41 07:18-08:03/45	06:40 18:32-18:42/10 19:36 07:04-07:24/20	05:35 19:04-19:53/49 20:27	04:49 19:42-20:04/22 21:13
2	08:12 16:02	07:43 16:51	06:49 16:47-17:16/29 17:43 07:15-07:58/43	06:38 07:02-07:25/23 19:37	05:33 19:06-19:54/48 20:29	04:49 19:43-20:03/20 21:14
3	08:12 16:03	07:42 16:53	06:47 16:50-17:16/26 17:45 07:12-07:50/38	06:36 07:00-07:24/24 19:39	05:31 19:07-19:56/49 20:30	04:48 19:44-20:02/18 21:15
4	08:12 16:04	07:40 16:55	06:45 16:56-17:16/20 17:47 07:11-07:47/36	06:33 06:59-07:24/25 19:41	05:29 19:08-19:58/50 20:32	04:47 19:45-19:58/13 21:16
5	08:11 16:06	07:38 16:57	06:42 16:56-17:16/20 17:48 07:08-07:45/37	06:31 06:59-07:24/25 19:42	05:27 19:09-20:02/53 20:34	04:46 19:47-19:57/10 21:17
6	08:11 16:07	07:37 16:59	06:40 16:56-17:15/19 17:50 07:05-07:42/37	06:29 19:03-19:11/8 19:44 06:59-07:24/25	05:26 19:12-19:25/13 20:35 19:26-20:05/39	04:46 19:49-19:55/6 21:18
7	08:11 16:08	07:35 17:00	06:38 16:57-17:14/17 17:52 07:03-07:40/37	06:26 18:59-19:15/16 19:46 06:58-07:22/24	05:24 19:15-19:21/6 20:37 19:26-20:06/40	04:45 21:19
8	08:10 16:10	07:33 17:02	06:36 16:58-17:13/15 17:54 07:01-07:38/37	06:24 18:57-19:17/20 19:48 06:58-07:21/23	05:22 19:25-20:07/42 20:38	04:45 21:20
9	08:10 16:11	07:31 17:04	06:33 16:59-17:10/11 17:56 06:59-07:35/36	06:22 18:56-19:19/23 19:49 06:58-07:20/22	05:20 19:26-20:08/42 20:40	04:44 21:21
10	08:09 16:12	07:30 17:06	06:31 17:02-17:07/5 17:26-17:32/6 17:57 06:56-07:31/35	06:20 18:54-19:20/26 19:51 06:59-07:18/19	05:19 19:25-20:08/43 20:42	04:44 21:22
11	08:08 16:14	07:28 17:08	06:29 06:54-07:30/36 17:59 17:23-17:34/11	06:17 18:53-19:21/28 19:53 06:59-07:14/15	05:17 19:25-20:08/43 20:43	04:43 21:22
12	08:08 16:15	07:26 07:57-08:05/8 17:10	06:27 06:52-07:27/35 18:01 17:21-17:35/14	06:15 18:52-19:23/31 19:54 07:00-07:12/12	05:15 19:26-20:09/43 20:45	04:43 21:23
13	08:07 16:17	07:24 07:54-08:08/14 17:12	06:24 06:49-07:24/35 18:03 17:19-17:37/18	06:13 18:51-19:25/34 19:56 07:03-07:09/6	05:14 19:25-20:09/44 20:47	04:43 21:24
14	08:06 16:18	07:22 07:52-08:10/18 17:14	06:22 06:47-07:21/34 18:04 17:19-17:39/20	06:11 18:51-19:27/36 19:58	05:12 19:26-20:10/44 20:48	04:42 21:24
15	08:06 16:20	07:20 07:49-08:11/22 17:15	06:20 06:45-07:19/34 18:06 17:17-17:40/23	06:08 18:50-19:27/37 20:00	05:10 19:27-20:10/43 20:50	04:42 21:25
16	08:05 16:21	07:18 07:46-08:12/26 17:17	06:17 06:42-07:16/34 18:08 17:17-17:42/25	06:06 18:50-19:29/39 20:01	05:09 19:27-20:10/43 20:51	04:42 21:26
17	08:04 16:23	07:16 07:44-08:13/29 17:19	06:15 06:40-07:14/34 18:10 17:17-17:44/27	06:04 18:50-19:31/41 20:03	05:07 19:28-20:10/42 20:53	04:42 21:26
18	08:03 16:25	07:14 07:42-08:13/31 17:21	06:13 06:37-07:12/35 18:11 17:16-17:45/29	06:02 18:50-19:32/42 20:05	05:06 19:29-20:10/41 20:54	04:42 21:26
19	08:02 16:26	07:12 07:40-08:14/34 17:23 16:50-16:55/5	06:10 06:33-07:09/36 18:13 17:17-17:48/31	06:00 18:50-19:33/43 20:06	05:04 19:29-20:10/41 20:56	04:42 21:27
20	08:01 16:28	07:10 07:39-08:14/35 17:25 16:48-16:57/9	06:08 06:32-07:06/34 18:15 17:18-17:50/32	05:58 18:50-19:34/44 20:08	05:03 19:30-20:10/40 20:57	04:42 21:27
21	08:00 16:30	07:08 07:35-08:13/38 17:27 16:47-16:59/12	06:06 06:31-07:04/33 18:17 17:18-17:50/32	05:55 18:51-19:34/43 20:10	05:02 19:31-20:10/39 20:59	04:42 21:27
22	07:59 16:31	07:06 07:33-08:13/40 17:28 16:46-17:01/15	06:03 06:29-07:01/32 18:18 17:20-17:51/31	05:53 18:52-19:35/43 20:12	05:00 19:32-20:10/38 21:00	04:42 21:28
23	07:57 16:33	07:04 07:30-08:13/43 17:30 16:45-17:03/18	06:01 06:29-06:59/30 18:20 17:23-17:51/28	05:51 18:53-19:35/42 20:13	04:59 19:33-20:09/36 21:02	04:43 21:28
24	07:56 16:35	07:02 07:29-08:12/43 17:32 16:45-17:04/19	05:59 06:29-06:57/28 18:22 17:23-17:51/28	05:49 18:54-19:35/41 20:15	04:58 19:35-20:09/34 21:03	04:43 21:28
25	07:55 16:37	07:00 17:06-17:08/2 16:45-17:05/20 17:34 07:27-08:12/45	05:56 06:28-06:54/26 18:24 17:24-17:51/27	05:47 18:56-19:35/39 20:17	04:57 19:36-20:08/32 21:04	04:43 21:28
26	07:54 16:38	06:58 16:44-17:09/25 17:36 07:23-08:10/47	05:54 06:28-06:52/24 18:25 17:27-17:51/24	05:45 18:57-19:34/37 20:18	04:55 19:37-20:08/31 21:06	04:44 21:28
27	07:52 16:40	06:56 16:45-17:11/26 17:38 07:22-08:08/46	05:52 06:28-06:50/22 18:27 17:26-17:49/23	05:43 18:58-19:34/36 20:20 19:39-19:45/6	04:54 19:38-20:07/29 21:07	04:44 21:28
28	07:51 16:42	06:53 16:45-17:13/28 17:39 07:19-08:06/47	05:50 06:28-06:47/19 06:12-06:21/9 18:29 17:27-17:49/22	05:41 18:59-19:34/35 20:22 19:35-19:49/14	04:53 19:38-20:07/29 21:08	04:45 21:28
29	07:49 16:44		06:47 07:29-07:45/16 07:10-07:23/13 19:30 18:28-18:48/20	05:39 19:01-19:50/49 20:23	04:52 19:40-20:07/27 21:09	04:45 21:28
30	07:48 16:46		06:45 07:30-07:44/14 07:08-07:24/16 19:32 18:28-18:46/18	05:37 19:02-19:52/50 20:25	04:51 19:41-20:06/25 21:11	04:46 21:27
31	07:46 16:47		06:43 07:32-07:41/9 07:07-07:24/17 19:34 18:30-18:44/14		04:50 19:41-20:05/24 21:12	
Sonnenscheinstunden	258	277	367	416	486	500
Anzahl Minuten mit Schatten	0	745	1730	1176	1242	89

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_01 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (651)

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

	Jul	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 19:36-20:20/44 20:55	06:13 18:52-19:20/28 19:53 06:58-07:13/15	07:02 07:30-08:04/34 18:43 18:00-18:16/16	06:57 16:36	07:48 15:56
2	04:47 21:27	05:25 19:35-20:19/44 20:53	06:15 18:53-19:19/26 19:50 06:57-07:16/19	07:04 07:32-08:07/35 18:40 18:00-18:12/12	06:58 16:34	07:49 15:55
3	04:48 21:26	05:26 19:36-20:19/43 20:52	06:16 18:53-19:16/23 19:48 06:56-07:18/22	07:06 07:33-08:08/35 18:38 18:02-18:10/8	07:00 16:33	07:51 15:54
4	04:48 21:26	05:28 19:35-20:17/42 20:50	06:18 18:54-19:14/20 19:46 06:55-07:18/23	07:08 17:38-17:47/9 18:36 07:35-08:11/36	07:02 16:31	07:52 15:54
5	04:49 21:25	05:29 19:36-20:17/41 20:48	06:20 18:56-19:12/16 19:43 06:55-07:19/24	07:09 17:36-17:49/13 18:34 07:37-08:13/36	07:04 16:29	07:54 15:53
6	04:50 19:56-20:01/5 21:25	05:31 19:23-19:32/9 20:46 19:35-20:15/40	06:21 18:59-19:08/9 19:41 06:54-07:19/25	07:11 17:33-17:50/17 18:31 07:38-08:15/37	07:06 16:27	07:55 15:53
7	04:51 19:54-20:03/9 21:24	05:32 19:20-19:35/15 20:45 19:36-20:14/38	06:23 06:54-07:19/25 19:39	07:13 17:32-17:51/19 18:29 07:40-08:17/37	07:07 16:26	07:56 15:52
8	04:52 19:53-20:05/12 21:24	05:34 19:18-20:11/53 20:43	06:25 06:53-07:18/25 19:37	07:14 17:31-17:51/20 18:27 07:42-08:19/37	07:09 16:24	07:57 15:52
9	04:53 19:52-20:08/16 21:23	05:36 19:17-20:07/50 20:41	06:26 06:54-07:18/24 19:34	07:16 17:31-17:51/20 18:24 07:44-08:21/37	07:11 16:22	07:58 15:52
10	04:54 19:51-20:10/19 21:22	05:37 19:15-20:03/48 20:39	06:28 06:55-07:18/23 19:32	07:18 17:30-17:50/20 18:22 07:45-08:22/37	07:13 16:21	08:00 15:51
11	04:55 19:51-20:12/21 21:22	05:39 19:14-20:03/49 20:37	06:30 18:25-18:34/9 19:30 06:56-07:16/20	07:19 17:23-17:50/27 18:20 07:47-08:28/41	07:15 16:19	08:01 15:51
12	04:56 19:50-20:13/23 21:21	05:40 19:12-20:01/49 20:35	06:31 07:24-07:32/8 06:59-07:16/17 19:27 18:22-18:36/14	07:21 17:20-17:50/30 18:18 07:50-08:32/42	07:16 16:17	08:02 15:51
13	04:57 19:49-20:14/25 21:20	05:42 19:10-20:00/50 20:33	06:33 07:21-07:34/13 06:58-07:14/16 19:25 18:19-18:37/18	07:23 17:19-17:48/29 18:15 07:51-08:38/47	07:18 16:16	08:03 15:51
14	04:58 19:49-20:15/26 21:19	05:44 19:08-19:58/50 20:31	06:34 07:19-07:36/17 07:00-07:13/13 19:23 18:18-18:38/20	07:25 17:17-17:44/27 18:13 07:53-08:40/47	07:20 16:14	08:04 15:51
15	04:59 19:48-20:16/28 21:18	05:45 19:07-19:41/34 20:29 19:43-19:55/12	06:36 07:18-07:37/19 07:02-07:12/10 19:20 18:16-18:38/22	07:26 17:17-17:42/25 18:11 07:55-08:41/46	07:22 16:13	08:05 15:51
16	05:01 19:47-20:17/30 21:17	05:47 19:05-19:41/36 20:27	06:38 07:17-07:38/21 07:04-07:07/3 19:18 18:16-18:39/23	07:28 17:16-17:40/24 18:09 07:56-08:42/46	07:24 16:12	08:05 15:51
17	05:02 19:47-20:17/30 21:16	05:49 19:03-19:41/38 20:25	06:39 07:16-07:40/24 19:16 18:15-18:39/24	07:30 07:58-08:43/45 18:07 17:16-17:36/20	07:25 16:10	08:06 15:51
18	05:03 19:46-20:18/32 21:15	05:50 19:02-19:41/39 20:23	06:41 07:15-07:41/26 19:13 18:12-18:38/26	07:32 08:01-08:44/43 18:05 17:16-17:36/20	07:27 16:09	08:07 15:52
19	05:04 19:45-20:18/33 21:14	05:52 18:59-19:41/42 20:21	06:43 07:15-07:43/28 19:11 18:10-18:38/28	07:33 08:03-08:44/41 18:02 17:17-17:34/17	07:29 16:08	08:08 15:52
20	05:06 19:44-20:19/35 21:12	05:54 18:58-19:41/43 20:19	06:44 07:16-07:45/29 19:09 18:08-18:37/29	07:35 08:05-08:44/39 18:00 17:17-17:32/15	07:30 16:06	08:08 15:52
21	05:07 19:43-20:19/36 21:11	05:55 18:56-19:39/43 20:17	06:46 07:15-07:46/31 19:06 18:06-18:37/31	07:37 08:07-08:44/37 17:58 17:17-17:29/12	07:32 16:05	08:09 15:53
22	05:08 19:41-20:19/38 21:10	05:57 18:56-19:39/43 20:15	06:48 07:15-07:49/34 19:04 18:04-18:36/32	07:39 08:09-08:43/34 17:56 17:19-17:27/8	07:34 16:04	08:10 15:53
23	05:10 19:41-20:21/40 21:09	05:58 18:54-19:38/44 20:12	06:49 07:16-07:50/34 19:01 18:02-18:34/32	07:40 08:10-08:43/33 17:54 17:22-17:25/3	07:35 16:03	08:10 15:54
24	05:11 19:40-20:20/40 21:07	06:00 18:54-19:37/43 20:10	06:51 07:16-07:52/36 18:59 18:01-18:32/31	07:42 08:12-08:43/31 17:52	07:37 16:02	08:11 15:54
25	05:13 19:39-20:20/41 21:06	06:02 18:52-19:35/43 20:08	06:53 07:18-07:54/36 18:57 18:00-18:30/30	06:44 07:14-07:42/28 16:50	07:39 16:01	08:11 15:55
26	05:14 19:39-20:21/42 21:04	06:03 18:52-19:34/42 20:06	06:54 07:21-07:55/34 18:54 17:59-18:26/27	06:46 07:16-07:41/25 16:48	07:40 16:00	08:11 15:56
27	05:16 19:38-20:21/43 21:03	06:05 18:52-19:32/40 20:04	06:56 07:23-07:57/34 18:52 17:59-18:25/26	06:48 07:19-07:40/21 16:46	07:42 15:59	08:11 15:56
28	05:17 19:37-20:20/43 21:01	06:07 18:52-19:29/37 20:02	06:57 07:25-07:59/34 18:50 17:59-18:23/24	06:49 07:22-07:39/17 16:44	07:43 15:58	08:12 15:57
29	05:19 19:37-20:21/44 21:00	06:08 18:52-19:28/36 19:59	06:59 07:26-08:00/34 18:47 17:58-18:20/22	06:51 07:24-07:37/13 16:42	07:45 15:57	08:12 15:58
30	05:20 19:36-20:20/44 20:58	06:10 18:51-19:25/34 19:57 07:03-07:09/6	07:01 07:28-08:03/35 18:45 17:59-18:18/19	06:53 07:28-07:33/5 16:40	07:46 15:56	08:12 15:59
31	05:22 19:37-20:21/44 20:57	06:12 18:52-19:23/31 19:55 07:00-07:12/12		06:55 16:38		08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
Anzahl Minuten mit Schatten	799	1363	1440	1453	0	0

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_02 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (652)

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni
1	08:12 16:01	07:45 08:17-09:17/60 16:49	06:51 07:21-08:03/42 17:41	06:40 18:34-19:02/28 19:36 07:39-07:49/10	05:35 20:27	04:49 21:13
2	08:12 16:02	07:43 08:16-09:16/60 16:51	06:49 07:18-08:01/43 17:43	06:38 18:35-19:01/26 19:37 19:03-19:10/7	05:33 20:29	04:49 21:14
3	08:12 08:54-08:59/5 16:03	07:42 08:14-09:15/61 16:53	06:47 07:14-07:58/44 17:45	06:36 18:36-19:13/37 19:39	05:31 20:30	04:48 21:15
4	08:12 08:53-09:01/8 16:05	07:40 08:13-09:12/59 16:55	06:45 07:12-07:55/43 17:47	06:33 18:38-19:15/37 19:41	05:29 20:32	04:47 21:16
5	08:11 08:52-09:03/11 16:06	07:38 08:11-09:08/57 16:57	06:42 07:11-07:53/42 17:48	06:31 18:40-19:16/36 19:42	05:28 20:34	04:46 21:17
6	08:11 08:51-09:05/14 16:07	07:37 08:08-09:03/55 16:59	06:40 07:09-07:50/41 17:50	06:29 18:41-19:18/37 19:44	05:26 20:35	04:46 21:18
7	08:11 08:50-09:06/16 16:08	07:35 08:07-09:02/55 17:00	06:38 07:09-07:48/39 17:52	06:26 18:43-18:53/10 19:46	05:24 20:37	04:45 21:19
8	08:10 08:50-09:08/18 16:10	07:33 08:06-08:58/52 17:02	06:36 07:08-07:46/38 17:54	06:24 18:54-19:21/27 19:48	05:22 20:39	04:45 21:20
9	08:10 08:50-09:08/18 16:11	07:32 08:03-08:51/48 17:04	06:33 07:08-07:44/36 17:56	06:22 18:53-19:23/30 19:49	05:20 20:40	04:44 21:21
10	08:09 08:49-09:09/20 16:12	07:30 08:01-08:49/48 17:06	06:31 07:08-07:41/33 17:57	06:20 18:52-19:24/32 19:51	05:19 20:42	04:44 21:22
11	08:09 08:49-09:10/21 16:14	07:28 07:59-08:44/45 17:08	06:29 07:08-07:39/31 17:59	06:17 18:53-19:26/33 19:53	05:17 20:43	04:43 21:22
12	08:08 08:46-09:12/26 16:15	07:26 07:57-08:43/46 17:10	06:27 07:09-07:37/28 18:01	06:15 18:53-19:28/35 19:54	05:15 20:45	04:43 21:23
13	08:07 08:45-09:13/28 16:17	07:24 07:55-08:41/46 17:12	06:24 07:08-07:34/26 18:03	06:13 18:53-19:30/37 19:56	05:14 20:47	04:43 21:24
14	08:06 08:44-09:14/30 16:18	07:22 07:54-08:39/45 17:14	06:22 07:10-07:33/23 06:50-07:00/10 18:04	06:11 18:54-19:31/37 19:58	05:12 20:48	04:42 21:24
15	08:06 08:43-09:14/31 16:20	07:20 07:51-08:37/46 17:15	06:20 07:12-07:32/20 06:46-07:03/17 18:06	06:09 18:54-19:30/36 20:00	05:10 20:50	04:42 21:25
16	08:05 08:41-09:15/34 16:21	07:18 07:49-08:34/45 17:17	06:17 07:14-07:29/15 06:43-07:04/21 18:08	06:06 18:56-19:30/34 20:01	05:09 20:51	04:42 21:26
17	08:04 08:40-09:16/36 16:23	07:16 07:47-08:32/45 17:19	06:15 07:19-07:25/6 06:42-07:06/24 18:10	06:04 18:58-19:30/32 20:03	05:07 20:53	04:42 21:26
18	08:03 08:40-09:17/37 16:25	07:14 07:45-08:30/45 17:21	06:13 17:38-17:45/7 18:11	06:02 18:59-19:29/30 20:05	05:06 20:54	04:42 21:26
19	08:02 08:38-09:17/39 16:26	07:12 07:44-08:27/43 17:23	06:10 17:35-17:48/13 18:13	06:00 19:00-19:29/29 20:06	05:04 20:56	04:42 21:27
20	08:01 08:36-09:17/41 16:28	07:10 07:41-08:24/43 17:25	06:08 17:34-17:50/16 18:15	05:58 19:02-19:28/26 20:08	05:03 20:57	04:42 21:27
21	08:00 08:34-09:18/44 16:30	07:08 07:38-08:22/44 17:27	06:06 17:31-17:51/20 18:17	05:56 19:04-19:27/23 20:10	05:02 20:59	04:42 21:27
22	07:59 08:33-09:19/46 16:31	07:06 07:36-08:19/43 17:28	06:03 17:31-17:53/22 18:18	05:53 19:11-19:26/15 20:12	05:00 21:00	04:42 21:28
23	07:57 08:31-09:19/48 16:33	07:04 07:34-08:16/42 17:30	06:01 17:30-17:55/25 18:20	05:51 19:12-19:24/12 20:13	04:59 21:02	04:43 21:28
24	07:56 08:31-09:19/48 16:35	07:02 07:33-08:15/42 17:32	05:59 17:29-17:56/27 18:22	05:49 19:15-19:20/5 20:15	04:58 21:03	04:43 21:28
25	07:55 08:30-09:19/49 16:37	07:00 07:30-08:12/42 17:34	05:56 17:29-17:58/29 18:24	05:47 20:17	04:57 21:04	04:43 21:28
26	07:54 08:28-09:19/51 16:38	06:58 07:27-08:09/42 17:36	05:54 17:29-18:00/31 18:25	05:45 20:18	04:56 21:06	04:44 21:28
27	07:52 08:25-09:19/54 16:40	06:56 07:26-08:07/41 17:38	05:52 17:28-18:01/33 18:27	05:43 20:20	04:54 21:07	04:44 21:28
28	07:51 08:24-09:19/55 16:42	06:53 07:23-08:04/41 17:39	05:50 17:29-18:02/33 18:29	05:41 20:22	04:53 21:08	04:45 21:28
29	07:49 08:22-09:19/57 16:44		06:47 18:30-19:02/32 19:30	05:39 20:23	04:52 21:09	04:45 21:28
30	07:48 08:21-09:19/58 16:46		06:45 18:30-19:02/32 19:32	05:37 20:25	04:51 21:11	04:46 21:27
31	07:46 08:19-09:18/59 16:47		06:43 18:32-19:02/30 19:34		04:50 21:12	
Sonnenscheinstunden	258	277	367	416	486	500
Anzahl Minuten mit Schatten	1002	1341	1515	727	0	0

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_02 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (652)

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

	Juli	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	06:57 16:36	07:48 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:40	06:58 16:34	07:49 15:55
3	04:48 21:26	05:26 20:52	06:16 19:48	07:06 18:38	07:00 16:33	07:51 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:52 15:54
5	04:49 21:25	05:29 20:48	06:20 19:44	07:09 18:34	07:04 16:29	07:54 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:06 16:27	07:55 15:53
7	04:51 21:24	05:32 20:45	06:23 19:39	07:13 18:29	07:08 16:26	07:56 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	07:09 16:24	07:57 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:24	07:11 16:22	07:58 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	07:13 16:21	08:00 15:51
11	04:55 21:22	05:39 20:37	06:30 19:30	07:19 18:20	07:15 16:19	08:01 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	07:16 16:17	08:02 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	07:18 16:16	08:03 15:51
14	04:58 21:19	05:44 20:31	06:34 19:23	07:25 18:13	07:20 16:14	08:04 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	07:22 16:13	08:05 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	07:24 16:12	08:06 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	07:25 16:10	08:06 15:51
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	07:27 16:09	08:07 15:52
19	05:04 21:14	05:52 20:21	06:43 19:11	07:33 18:02	07:29 16:08	08:08 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	07:30 16:06	08:08 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 16:05	08:09 15:53
22	05:08 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:34 16:04	08:10 15:53
23	05:10 21:09	05:58 20:13	06:49 19:01	07:40 17:54	07:35 16:03	08:10 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 16:02	08:11 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 16:50	07:39 16:01	08:11 15:55
26	05:14 21:04	06:03 20:06	06:54 18:54	07:46 16:48	07:40 16:00	08:11 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	07:48 16:46	07:42 15:59	08:11 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	07:49 16:44	07:43 15:58	08:12 15:57
29	05:19 21:00	06:08 19:59	06:59 18:47	07:50 16:42	07:45 15:57	08:12 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	07:51 16:40	07:46 15:56	08:12 15:59
31	05:22 20:57	06:12 19:55	07:03 18:43	07:53 16:38	07:48 15:55	08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
Anzahl Minuten mit Schatten	0	356	1331	1380	1427	134

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_03 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (653)

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	Jun
1	08:12	09:00-10:31/91	07:45	08:28-09:31/63	06:51	07:39-08:28/49	06:40	18:53-19:10/17	05:35	04:50
	16:01		16:49		17:41		19:36	08:05-08:15/10	20:27	21:13
2	08:12	08:59-10:30/91	07:43	08:27-09:30/63	06:49	07:39-08:26/47	06:38	18:52-19:11/19	05:33	04:49
	16:02		16:51		17:43		19:37		20:29	21:14
3	08:12	09:00-10:31/91	07:42	08:24-09:27/63	06:47	07:39-08:23/44	06:36	18:52-19:13/21	05:31	04:48
	16:03		16:53		17:45		19:39		20:30	21:15
4	08:12	09:00-10:31/91	07:40	08:22-09:25/63	06:45	07:39-08:22/43	06:33	18:52-19:15/23	05:29	04:47
	16:05		16:55		17:47		19:41		20:32	21:16
5	08:11	08:59-10:31/92	07:38	08:21-09:21/60	06:42	07:40-08:21/41	06:31	18:53-19:15/22	05:28	04:46
	16:06		16:57		17:48		19:42		20:34	21:17
6	08:11	08:59-10:31/92	07:37	08:19-09:19/60	06:40	07:40-08:19/39	06:29	18:53-19:14/21	05:26	04:46
	16:07		16:59		17:50	07:23-07:33/10	19:44		20:35	21:18
7	08:11	08:59-10:31/92	07:35	08:17-09:18/61	06:38	07:41-08:17/36	06:27	18:55-19:14/19	05:24	04:45
	16:08		17:00		17:52	07:19-07:37/18	19:46		20:37	21:19
8	08:10	08:59-10:31/92	07:33	08:15-09:16/61	06:36	07:43-08:16/33	06:24	18:57-19:13/16	05:22	04:45
	16:10		17:02		17:54	07:11-07:39/28	19:48		20:39	21:20
9	08:10	08:57-10:30/93	07:32	08:14-09:11/57	06:33	07:45-08:14/29	06:22	18:58-19:12/14	05:20	04:44
	16:11		17:04		17:56	07:08-07:41/33	19:49		20:40	21:21
10	08:09	08:55-10:29/94	07:30	08:12-09:10/58	06:31	07:48-07:55/7 07:05-07:41/36	06:20	18:59-19:09/10	05:19	04:44
	16:12		17:06		17:57	07:58-08:09/11	19:51		20:42	21:22
11	08:09	08:54-10:28/94	07:28	08:09-09:08/59	06:29	07:04-07:42/38	06:17		05:17	04:43
	16:14		17:08		17:59		19:53		20:43	21:22
12	08:08	08:54-10:28/94	07:26	08:08-09:06/58	06:27	07:03-07:43/40	06:15		05:15	04:43
	16:15		17:10		18:01		19:54		20:45	21:23
13	08:07	08:53-10:27/94	07:24	08:07-09:04/57	06:24	07:01-07:43/42	06:13		05:14	04:43
	16:17		17:12		18:03		19:56		20:47	21:24
14	08:06	10:18-10:24/6	07:22	08:04-09:02/58	06:22	07:01-07:44/43	06:11		05:12	04:42
	16:18	08:53-10:16/83	17:14		18:04		19:58		20:48	21:24
15	08:06	08:52-10:15/83	07:20	08:02-09:00/58	06:20	07:00-07:44/44	06:09		05:10	04:42
	16:20		17:15		18:06		20:00		20:50	21:25
16	08:05	08:52-10:14/82	07:18	08:00-08:56/56	06:17	06:59-07:43/44	06:06		05:09	04:42
	16:21		17:17		18:08		20:01		20:51	21:26
17	08:04	08:49-10:13/84	07:16	07:59-08:55/56	06:15	06:59-07:43/44	06:04		05:07	04:42
	16:23		17:19		18:10		20:03		20:53	21:26
18	08:03	08:48-10:10/82	07:14	07:57-08:53/56	06:13	06:58-07:43/45	06:02		05:06	04:42
	16:25		17:21		18:11		20:05		20:54	21:26
19	08:02	08:46-10:05/79	07:12	07:51-08:51/60	06:10	06:57-07:42/45	06:00		05:05	04:42
	16:26		17:23		18:13		20:06		20:56	21:27
20	08:01	09:55-10:03/8	07:10	07:48-08:49/61	06:08	06:57-07:41/44	05:58		05:03	04:42
	16:28	08:45-09:54/69	17:25		18:15		20:08		20:57	21:27
21	08:00	08:45-09:53/68	07:08	07:45-08:45/60	06:06	17:47-17:51/4	05:56		05:02	04:42
	16:30		17:27		18:17	06:57-07:41/44	20:10		20:59	21:27
22	07:59	08:43-09:52/69	07:06	07:43-08:43/60	06:04	17:45-17:53/8	05:53		05:00	04:42
	16:31		17:28		18:18	06:56-07:39/43	20:12		21:00	21:28
23	07:57	08:41-09:50/69	07:04	07:42-08:41/59	06:01	17:44-17:55/11	05:51		04:59	04:43
	16:33		17:30		18:20	06:56-07:38/42	20:13		21:02	21:28
24	07:56	08:40-09:48/68	07:02	07:41-08:39/58	05:59	17:42-17:56/14	05:49		04:58	04:43
	16:35		17:32		18:22	06:56-07:37/41	20:15		21:03	21:28
25	07:55	08:39-09:42/63	07:00	07:41-08:37/56	05:57	17:42-17:58/16	05:47		04:57	04:43
	16:37		17:34		18:24	06:56-07:34/38	20:17		21:04	21:28
26	07:54	08:38-09:42/64	06:58	07:40-08:35/55	05:54	17:41-18:00/19	05:45		04:56	04:44
	16:38		17:36		18:25	06:56-07:33/37	20:18		21:06	21:28
27	07:52	08:35-09:40/65	06:56	07:39-08:32/53	05:52	17:41-17:58/17	05:43		04:54	04:44
	16:40		17:38		18:27	06:57-07:30/33	20:20		21:07	21:28
28	07:51	08:34-09:39/65	06:53	07:39-08:30/51	05:50	17:41-18:03/22	05:41		04:53	04:45
	16:42		17:39		18:29	06:57-07:25/28	20:22		21:08	21:28
29	07:49	08:32-09:37/65			06:47	18:42-19:05/23	05:39		04:52	04:45
	16:44				19:30	07:58-08:24/26	20:24		21:09	21:28
30	07:48	08:31-09:35/64			06:45	18:42-19:06/24	05:37		04:51	04:46
	16:46				19:32	08:00-08:22/22	20:25		21:11	21:27
31	07:46	08:29-09:33/64			06:43	18:44-19:08/24			04:50	
	16:47				19:34	08:01-08:18/17			21:12	
Sonnenscheinstunden	258		277		367		416	192	486	500
Anzahl Minuten mit Schatten	2501		1640		1486				0	0

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_03 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (653)

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

	Jul	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	07:41-08:22/41 16:36	07:48 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	07:42-08:22/40 16:34	07:49 15:55
3	04:48 21:26	05:26 20:52	06:16 19:48	07:06 18:38	07:43-08:20/37 16:33	07:51 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	08:23-08:49/26 07:44-08:18/34 16:31	07:52 15:54
5	04:49 21:25	05:29 20:48	06:20 19:44	07:09 18:34	08:21-08:52/31 07:46-08:17/31 16:29	07:54 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	08:18-08:53/35 07:49-08:14/25 16:27	07:55 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 18:29	08:16-08:54/38 07:57-08:11/14 16:26	07:56 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 18:27	08:15-08:55/40 07:58-08:11/14 16:24	07:57 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 18:25	08:15-08:56/41 07:59-08:11/14 16:22	07:59 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 18:22	08:13-08:56/43 07:59-08:11/14 16:21	08:00 15:52
11	04:55 21:22	05:39 20:37	06:30 19:30	07:20 18:20	08:13-08:58/45 07:58-08:11/14 16:19	08:01 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 18:18	08:12-09:00/48 07:54-08:10/16 16:17	08:02 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 18:16	08:12-09:02/50 07:55-08:11/14 16:16	08:03 15:51
14	04:58 21:19	05:44 20:31	06:34 19:23	07:25 18:13	08:12-09:04/52 07:56-08:11/14 16:14	08:04 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 18:11	08:11-09:05/54 07:57-08:11/14 16:13	08:05 15:51
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 18:09	08:12-09:07/55 07:58-08:11/14 16:12	08:06 15:51
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 18:07	08:12-09:09/57 07:59-08:11/14 16:10	08:06 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	08:13-09:11/58 07:59-08:11/14 16:09	08:07 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:02	08:14-09:13/59 07:59-08:11/14 16:08	08:08 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	08:15-09:15/60 07:59-08:11/14 16:06	08:08 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	08:17-09:18/61 07:59-08:11/14 16:05	08:09 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	08:18-09:19/61 07:59-08:11/14 16:04	08:10 15:53
23	05:10 21:09	05:58 20:13	06:49 19:02	07:40 17:54	08:21-09:21/60 07:59-08:11/14 16:03	08:10 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	08:23-09:22/60 07:59-08:11/14 16:02	08:11 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	07:44 17:50	08:27-09:23/56 07:59-08:11/14 16:01	08:11 15:55
26	05:14 21:04	06:03 20:06	06:54 18:54	07:46 17:48	08:29-09:25/57 07:59-08:11/14 16:00	08:11 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	07:48 17:46	08:31-09:24/83 07:59-08:11/14 15:59	08:12 15:56
28	05:17 21:01	06:07 20:02	06:58 18:50	07:49 17:44	09:58-10:04/6 08:33-09:56/83 07:45	08:12 15:57
29	05:19 21:00	06:08 19:59	06:59 18:47	07:51 17:42	08:33-10:07/94 07:45	08:12 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	07:53 17:40	08:35-10:09/94 07:45	08:12 15:59
31	05:22 20:57	06:12 19:55		07:55 17:38		08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
Anzahl Minuten mit Schatten	0	0	1096	1663	2101	2794

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_04 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (654)

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	08:12 16:01	07:45 08:12-08:52/40 16:49	06:51 07:27-07:48/21 17:41 16:39-17:11/32	06:40 18:15-19:05/50 19:36	05:35 20:27	04:49 21:13
2	08:12 16:02	07:43 08:10-08:51/41 16:51	06:49 07:28-07:46/18 17:43 16:40-17:12/32	06:38 18:16-19:04/48 19:37	05:33 20:29	04:49 21:14
3	08:12 16:03	07:42 08:08-08:48/40 16:53	06:47 07:28-07:44/16 07:12-07:18/6 17:45 16:50-17:14/24	06:36 18:17-19:05/48 19:39	05:31 20:30	04:48 21:15
4	08:12 16:05	07:40 08:07-08:44/37 16:55	06:45 07:29-07:42/13 07:09-07:21/12 17:47 16:49-17:16/27	06:33 18:19-19:05/46 19:41	05:29 20:32	04:47 21:16
5	08:11 16:06	07:38 08:04-08:41/37 16:57	06:42 07:32-07:40/8 07:08-07:23/15 17:48 16:48-17:18/30	06:31 18:21-19:06/45 19:42	05:28 20:34	04:46 21:17
6	08:11 16:07	07:37 08:02-08:38/36 16:59	06:40 16:47-17:19/32 17:50 07:04-07:23/19	06:29 18:21-19:04/43 19:44	05:26 20:35	04:46 21:18
7	08:11 08:43-08:46/3 16:08	07:35 08:01-08:36/35 17:00	06:38 16:47-17:21/34 17:52 07:02-07:24/22	06:26 18:22-19:04/42 19:46	05:24 20:37	04:45 21:19
8	08:10 08:42-08:49/7 16:10	07:33 07:59-08:35/36 17:02	06:36 16:47-17:23/36 17:54 07:01-07:24/23	06:24 18:24-19:04/40 19:48	05:22 20:38	04:45 21:20
9	08:10 08:41-08:51/10 16:11	07:31 07:58-08:32/34 17:04	06:33 16:46-17:24/38 17:56 07:00-07:24/24	06:22 18:26-19:03/37 19:49	05:20 20:40	04:44 21:21
10	08:09 08:40-08:52/12 16:12	07:30 07:55-08:31/36 17:06	06:31 16:46-17:26/40 17:57 06:58-07:23/25	06:20 18:28-19:02/34 19:51	05:19 20:42	04:44 21:22
11	08:08 08:39-08:53/14 16:14	07:28 07:53-08:28/35 17:08	06:29 16:47-17:27/40 17:59 06:58-07:23/25	06:17 18:38-19:01/23 19:53	05:17 20:43	04:43 21:22
12	08:08 08:39-08:55/16 16:15	07:26 07:51-08:26/35 17:10 16:36-16:42/6	06:27 16:46-17:26/40 18:01 06:58-07:22/24	06:15 18:39-18:59/20 19:54	05:15 20:45	04:43 21:23
13	08:07 08:38-08:56/18 16:17	07:24 07:49-08:24/35 17:12 16:34-16:44/10	06:24 16:47-17:27/40 18:03 06:57-07:20/23	06:13 18:40-18:58/18 19:56	05:14 20:47	04:43 21:24
14	08:06 08:36-08:57/21 16:18	07:22 07:47-08:21/34 17:14 16:32-16:46/14	06:22 16:49-17:27/38 18:04 06:58-07:19/21	06:11 18:43-18:55/12 19:58	05:12 20:48	04:42 21:24
15	08:06 08:35-08:58/23 16:20	07:20 07:46-08:19/33 17:15 16:32-16:48/16	06:20 16:49-17:26/37 18:06 06:59-07:16/17	06:08 18:47-18:49/2 20:00	05:10 20:50	04:42 21:25
16	08:05 08:34-08:58/24 16:21	07:18 07:43-08:17/34 17:17 16:31-16:50/19	06:17 16:51-17:27/36 18:08 06:59-07:13/14	06:06 20:01	05:09 20:51	04:42 21:25
17	08:04 08:33-08:59/26 16:23	07:16 07:42-08:15/33 17:19 16:31-16:52/21	06:15 16:53-17:26/33 07:01-07:11/10 18:10 17:30-17:35/5	06:04 20:03	05:07 20:53	04:42 21:26
18	08:03 08:32-09:00/28 16:25	07:14 07:39-08:12/33 17:21 16:31-16:54/23	06:13 16:53-17:39/46 18:11	06:02 20:05	05:06 20:54	04:42 21:26
19	08:02 08:31-09:00/29 16:26	07:12 07:38-08:11/33 17:23 16:30-16:55/25	06:10 16:55-17:42/47 18:13	06:00 20:06	05:04 20:56	04:42 21:27
20	08:01 08:29-09:00/31 16:28	07:10 07:36-08:08/32 17:25 16:30-16:57/27	06:08 16:57-17:43/46 18:15	05:58 20:08	05:03 20:57	04:42 21:27
21	08:00 08:28-09:01/33 16:30	07:08 07:33-08:06/33 17:27 16:31-16:58/27	06:06 16:58-17:44/46 18:17	05:55 20:10	05:02 20:59	04:42 21:27
22	07:59 08:27-09:02/35 16:31	07:06 07:31-08:03/32 17:28 16:31-16:58/27	06:03 17:00-17:45/45 18:18	05:53 20:12	05:00 21:00	04:42 21:28
23	07:57 08:25-09:01/36 16:33	07:04 07:30-08:01/31 17:30 16:33-16:58/25	06:01 17:02-17:48/46 18:20	05:51 20:13	04:59 21:01	04:43 21:28
24	07:56 08:25-09:02/37 16:35	07:02 07:29-07:59/30 17:32 16:35-16:59/24	05:59 17:04-17:49/45 18:22	05:49 20:15	04:58 21:03	04:43 21:28
25	07:55 08:22-09:01/39 16:37	07:00 07:28-07:57/29 17:34 16:36-16:58/22	05:56 17:15-17:50/35 18:24	05:47 20:17	04:57 21:04	04:43 21:28
26	07:54 08:21-09:01/40 16:38	06:58 07:27-07:55/28 17:36 16:36-16:57/21	05:54 17:15-17:52/37 18:25	05:45 20:18	04:55 21:06	04:44 21:28
27	07:52 08:19-09:01/42 16:40	06:56 07:27-07:52/25 17:01-17:03/2 17:38 16:37-16:57/20	05:52 17:14-17:51/37 18:27	05:43 20:20	04:54 21:07	04:44 21:28
28	07:51 08:18-09:01/43 16:42	06:53 07:27-07:50/23 17:39 16:38-17:09/31	05:50 17:14-17:58/44 18:29	05:41 20:22	04:53 21:08	04:45 21:28
29	07:49 08:16-09:00/44 16:44		06:47 18:14-19:01/47 19:30	05:39 20:23	04:52 21:09	04:45 21:28
30	07:48 08:15-08:59/44 16:46		06:45 18:14-19:02/48 19:32	05:37 20:25	04:51 21:11	04:46 21:27
31	07:46 08:13-08:57/44 16:47		06:43 18:15-19:04/49 19:34		04:50 21:12	
Sonnenscheinstunden	258	277	367	416	486	500
Anzahl Minuten mit Schatten	699	1300	1568	508	0	0

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_04 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (654)
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

	Juli	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 18:37-19:00/23 19:53	07:02 17:26-18:06/40 18:43 07:37-08:01/24	06:57 07:25-08:01/36 16:36	07:48 08:21-08:35/14 15:56
2	04:47 21:27	05:25 20:53	06:15 18:27-19:01/34 19:50	07:04 17:25-18:05/40 18:40 07:37-08:02/25	06:58 07:28-08:03/35 16:34	07:49 08:23-08:35/12 15:55
3	04:48 21:26	05:26 20:52	06:16 18:23-19:00/37 19:48	07:06 17:24-18:04/40 18:38 07:36-08:01/25	07:00 07:29-08:05/36 16:33	07:51 08:24-08:34/10 15:54
4	04:49 21:26	05:28 20:50	06:18 18:21-19:01/40 19:46	07:08 17:24-18:03/39 18:36 07:36-08:01/25	07:02 07:31-08:06/35 16:31	07:52 08:26-08:33/7 15:54
5	04:49 21:25	05:29 20:48	06:20 18:19-19:01/42 19:43	07:09 17:24-18:01/37 18:34 07:37-08:01/24	07:04 07:33-08:09/36 16:29	07:53 08:28-08:31/3 15:53
6	04:50 21:25	05:31 20:46	06:21 18:17-19:01/44 19:41	07:11 17:23-17:58/35 18:31 07:37-08:00/23	07:06 07:35-08:12/37 16:27	07:55 15:53
7	04:51 21:24	05:32 20:45	06:23 18:16-19:01/45 19:39	07:13 17:23-17:56/33 18:29 07:39-07:59/20	07:07 07:38-08:15/37 16:26	07:56 15:52
8	04:52 21:24	05:34 20:43	06:25 18:14-19:00/46 19:37	07:14 08:09-08:13/4 07:42-07:58/16 18:27 17:23-17:54/31	07:09 07:38-08:18/40 16:24	07:57 15:52
9	04:53 21:23	05:36 20:41	06:26 18:12-18:59/47 19:34	07:16 08:05-08:16/11 07:43-07:57/14 18:24 17:24-17:52/28	07:11 07:40-08:21/41 16:22	07:58 15:52
10	04:54 21:22	05:37 20:39	06:28 18:09-18:58/49 19:32	07:18 08:02-08:17/15 07:44-07:54/10 18:22 17:23-17:49/26	07:13 07:43-08:23/40 16:21	08:00 15:51
11	04:55 21:21	05:39 20:37	06:30 18:08-18:57/49 19:30	07:19 08:01-08:18/17 18:20 17:16-17:47/31	07:15 07:44-08:28/44 16:19	08:01 15:51
12	04:56 21:21	05:41 20:35	06:31 18:07-18:56/49 19:27	07:21 08:01-08:20/19 18:18 17:13-17:45/32	07:16 07:46-08:30/44 16:17	08:02 15:51
13	04:57 21:20	05:42 20:33	06:33 18:05-18:54/49 19:25	07:23 08:00-08:22/22 18:16 17:11-17:43/32	07:18 07:48-08:31/43 16:16	08:03 15:51
14	04:58 21:19	05:44 20:31	06:34 18:05-18:52/47 19:23	07:25 08:00-08:24/24 17:29-17:40/11 18:13 17:09-17:28/19	07:20 07:50-08:33/43 16:14	08:04 15:51
15	05:00 21:18	05:45 20:29	06:36 18:03-18:48/45 19:20	07:26 07:59-08:25/26 18:11 17:08-17:29/21	07:22 07:52-08:34/42 16:13	08:05 15:51
16	05:01 21:17	05:47 20:27	06:38 18:03-18:41/38 19:18	07:28 07:59-08:27/28 18:09 17:08-17:29/21	07:24 07:54-08:34/40 16:12	08:05 15:51
17	05:02 21:16	05:49 20:25	06:39 18:03-18:40/37 19:16	07:30 07:59-08:29/30 18:07 17:07-17:30/23	07:25 07:56-08:35/39 16:10	08:06 15:51
18	05:03 21:15	05:50 20:23	06:41 18:02-18:38/36 19:13	07:32 08:00-08:31/31 18:05 17:05-17:30/25	07:27 07:59-08:36/37 16:09	08:07 15:52
19	05:04 21:14	05:52 20:21	06:43 17:52-18:01/9 19:11 18:03-18:37/34	07:33 08:01-08:34/33 18:02 17:04-17:30/26	07:29 08:00-08:36/36 16:08	08:08 15:52
20	05:06 21:12	05:54 20:19	06:44 17:48-18:34/46 19:09	07:35 08:03-08:35/32 18:00 17:02-17:29/27	07:30 08:02-08:37/35 16:06	08:08 15:52
21	05:07 21:11	05:55 20:17	06:46 17:46-18:32/46 19:06	07:37 08:05-08:37/32 17:58 17:01-17:28/27	07:32 08:03-08:36/33 16:05	08:09 15:53
22	05:08 21:10	05:57 20:15	06:48 17:44-18:30/46 19:04	07:39 08:06-08:39/33 17:56 17:00-17:27/27	07:34 08:05-08:37/32 16:04	08:10 15:53
23	05:10 21:08	05:58 20:12	06:49 17:41-18:27/46 19:01	07:40 08:08-08:41/33 17:54 17:00-17:25/25	07:35 08:08-08:37/29 16:03	08:10 15:54
24	05:11 21:07	06:00 20:10	06:51 17:40-18:26/46 18:59	07:42 08:09-08:42/33 17:52 17:00-17:23/23	07:37 08:09-08:37/28 16:02	08:10 15:54
25	05:13 21:06	06:02 20:08	06:53 17:38-18:24/46 18:57	06:44 07:12-07:45/33 16:50 16:00-16:21/21	07:39 08:11-08:37/26 16:01	08:11 15:55
26	05:14 21:04	06:03 20:06	06:54 17:35-18:08/33 07:44-07:52/8 18:54 18:10-18:19/9	06:46 07:13-07:46/33 16:48 16:01-16:19/18	07:40 08:12-08:37/25 16:00	08:11 15:56
27	05:16 21:03	06:05 20:04	06:56 17:33-18:08/35 18:52 07:41-07:54/13	06:48 07:16-07:50/34 16:46 16:01-16:17/16	07:42 08:14-08:37/23 15:59	08:11 15:56
28	05:17 21:01	06:07 18:48-18:52/4 20:02	06:57 17:32-18:08/36 18:50 07:40-07:56/16	06:49 07:17-07:51/34 16:44 16:02-16:15/13	07:43 08:16-08:37/21 15:58	08:12 15:57
29	05:19 21:00	06:08 18:43-18:56/13 19:59	06:59 17:29-18:07/38 18:47 07:38-07:58/20	06:51 07:20-07:54/34 16:42 16:04-16:13/9	07:45 08:17-08:36/19 15:57	08:12 15:58
30	05:20 20:58	06:10 18:40-18:58/18 19:57	07:01 17:28-18:07/39 18:45 07:37-08:00/23	06:53 07:21-07:56/35 16:40 16:06-16:11/5	07:46 08:20-08:36/16 15:56	08:12 15:59
31	05:22 20:57	06:12 18:39-18:59/20 19:55		06:55 07:23-07:58/35 16:38		08:12 16:00
Sonnenscheinstunden	503	454	381	331	266	243
Anzahl Minuten mit Schatten	0	55	1346	1668	1028	46

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_05 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (655)
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	08:12 08:58-09:58/60 16:01 16:49	07:45 08:28-09:23/55 16:49 17:41	06:51 06:40 17:41 19:36	05:35 06:40 19:36 20:27	04:50 06:40 20:27 21:17	04:46 06:40 21:17 21:27	05:23 06:40 21:27 20:55	06:13 06:40 20:55 19:53	07:03 06:40 19:53 18:43	07:37 08:27/50 18:43 19:36	06:57 07:37-08:27/50 19:36 18:36	07:48 08:36-09:32/56 18:36 15:56
2	08:12 08:57-09:56/59 16:02 16:51	07:43 08:27-09:23/56 16:51 17:43	06:49 06:38 17:43 19:37	05:33 06:38 19:37 20:29	04:49 06:38 20:29 21:14	04:47 06:38 21:14 21:27	05:25 06:38 21:27 20:53	06:15 06:38 20:53 19:50	07:04 06:38 19:50 18:41	07:38 08:29/51 18:41 16:35	06:58 07:38-08:29/51 16:35 15:55	07:49 08:37-09:34/57 15:55 15:55
3	08:12 08:57-09:56/59 16:03 16:53	07:42 08:26-09:22/56 16:53 17:45	06:47 06:36 17:45 19:39	05:31 06:36 19:39 20:30	04:48 06:36 20:30 21:15	04:48 06:36 21:15 21:26	05:26 06:36 21:26 20:52	06:17 06:36 20:52 19:48	07:06 06:36 19:48 18:38	07:39 08:31/52 18:38 16:33	07:00 07:39-08:31/52 16:33 15:54	07:51 08:38-09:35/57 15:54 15:54
4	08:12 08:57-09:56/59 16:05 16:55	07:40 08:23-09:20/57 16:55 17:47	06:45 06:33 17:47 19:41	05:29 06:33 19:41 20:32	04:47 06:33 20:32 21:16	04:49 06:33 21:16 21:26	05:28 06:33 21:26 20:50	06:18 06:33 20:50 19:46	07:08 06:33 19:46 18:36	07:02 07:41-08:33/52 18:36 16:31	07:02 07:41-08:33/52 16:31 15:54	07:52 08:39-09:37/58 15:54 15:54
5	08:11 08:56-09:55/59 16:06 16:57	07:38 08:20-09:19/59 16:57 17:48	06:42 06:31 17:48 19:42	05:28 06:31 19:42 20:34	04:46 06:31 20:34 21:17	04:49 06:31 21:17 21:25	05:29 06:31 21:25 20:48	06:20 06:31 20:48 19:44	07:09 06:31 19:44 18:34	07:04 07:45-08:48/63 18:34 16:29	07:04 07:45-08:48/63 16:29 15:53	07:54 08:40-09:39/59 15:53 15:53
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7	08:11 08:55-09:54/59 16:08 16:59	07:35 08:11-09:03/52 16:59 17:52	06:38 06:27 17:52 19:46	05:24 06:27 19:46 20:37	04:45 06:27 20:37 21:19	04:51 06:27 21:19 21:24	05:33 06:27 21:24 20:45	06:23 06:27 20:45 19:39	07:13 06:27 19:39 18:29	07:08 07:53-08:50/57 18:29 16:26	07:08 07:53-08:50/57 16:26 15:52	07:56 08:43-09:42/59 15:52 15:52
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SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_06 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (656)

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	08:12 08:47-09:41/54 16:01	07:45 08:15-08:55/40 16:49	06:51 16:44-17:14/30 17:41 07:37-07:59/22	06:40 19:36	05:35 20:27	04:50 21:13
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Sonnenscheinstunden	258	277	367	416	486	500
Anzahl Minuten mit Schatten	1401	1181	857	0	0	0

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_06 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (656)

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

	July	August	September	October	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 17:44-18:13/29 18:43	06:57 07:31-08:08/37 16:36	07:48 08:22-09:08/46 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 17:43-18:11/28 18:40	06:58 07:31-08:10/39 16:34	07:49 08:24-09:13/49 15:55
3	04:48 21:26	05:26 20:52	06:16 19:48	07:06 17:35-18:10/35 18:38	07:00 07:32-08:12/40 16:33	07:51 08:26-09:15/49 15:54
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12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 17:17-17:48/31 18:18 08:11-08:31/20	07:16 07:50-08:30/40 16:17	08:02 08:38-09:33/55 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 17:17-17:47/30 18:16 08:10-08:33/23	07:18 07:51-08:32/41 16:16	08:03 08:39-09:34/55 15:51
14	04:58 21:19	05:44 20:31	06:34 19:23	07:25 17:15-17:44/29 18:13 08:09-08:36/27	07:20 07:54-08:34/40 16:14	08:04 08:40-09:35/55 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 17:15-17:42/27 18:11 08:07-08:36/29	07:22 07:55-08:37/42 16:13	08:05 08:41-09:36/55 15:51
16	05:01 21:17	05:47 20:27	06:38 18:18-18:24/6 19:18	07:28 17:15-17:40/25 18:09 08:06-08:37/31	07:24 07:57-08:38/41 16:12	08:05 08:42-09:37/55 15:51
17	05:02 21:16	05:49 20:25	06:39 18:15-18:27/12 19:16	07:30 17:16-17:38/22 18:07 08:06-08:38/32	07:25 08:00-08:41/41 16:10	08:06 08:41-09:37/56 15:52
18	05:03 21:15	05:50 20:23	06:41 18:12-18:28/16 19:13	07:32 17:16-17:36/20 18:05 08:06-08:39/33	07:27 08:01-08:44/43 16:09	08:07 08:42-09:38/56 15:52
19	05:05 21:14	05:52 20:21	06:43 18:11-18:29/18 19:11	07:33 17:17-17:34/17 18:02 08:06-08:39/33	07:29 08:03-08:46/43 16:08	08:08 08:43-09:39/56 15:52
20	05:06 21:12	05:54 20:19	06:44 18:09-18:29/20 19:09	07:35 17:18-17:32/14 18:00 08:07-08:39/32	07:30 08:06-08:48/42 16:06	08:08 08:43-09:39/56 15:52
21	05:07 21:11	05:55 20:17	06:46 18:01-18:30/29 19:06	07:37 17:19-17:29/10 17:58 08:08-08:39/31	07:32 08:06-08:49/43 16:05	08:09 08:44-09:40/56 15:53
22	05:09 21:10	05:57 20:15	06:48 17:58-18:30/32 19:04	07:39 08:40-08:41/1 08:08-08:38/30 17:56 17:22-17:27/5	07:34 08:08-08:51/43 16:04	08:10 08:45-09:40/55 15:53
23	05:10 21:08	05:58 20:12	06:49 17:55-18:29/34 19:01	07:40 08:09-08:46/37 17:54	07:35 08:10-08:53/43 16:03	08:10 08:45-09:41/56 15:54
24	05:11 21:07	06:00 20:10	06:51 17:54-18:29/35 18:59	07:42 08:11-08:53/42 17:52	07:37 08:12-08:55/43 16:02	08:10 08:45-09:41/56 15:54
25	05:13 21:06	06:02 20:08	06:53 17:52-18:28/36 18:57	07:44 07:17-07:56/39 16:50	07:39 08:14-08:57/43 16:01	08:11 08:46-09:42/56 15:55
26	05:14 21:04	06:03 20:06	06:54 17:49-18:27/38 18:54	07:46 07:18-07:58/40 16:48	07:40 08:15-08:57/42 16:00	08:11 08:46-09:42/56 15:56
27	05:16 21:03	06:05 20:04	06:56 17:48-18:25/37 18:52	07:48 07:20-07:59/39 16:46	07:42 08:17-08:59/42 15:59	08:11 08:46-09:42/56 15:56
28	05:17 21:01	06:07 20:02	06:58 17:47-18:23/36 18:50	07:49 07:30-08:00/30 16:44 07:23-07:29/6	07:43 08:19-09:04/45 15:58	08:12 08:47-09:42/55 15:57
29	05:19 21:00	06:08 19:59	06:59 17:45-18:20/35 18:47	07:51 07:30-08:02/32 16:42	07:45 08:20-09:05/45 15:57	08:12 08:47-09:42/55 15:58
30	05:20 20:58	06:10 19:57	07:01 17:45-18:13/28 18:45	07:53 07:30-08:04/34 16:40	07:46 08:22-09:07/45 15:56	08:12 08:47-09:42/55 15:59
31	05:22 20:57	06:12 19:55		07:55 07:30-08:06/36 16:38		08:12 08:47-09:42/55 16:00
Sonnenscheinstunden	503	454	381	331	266	243
Anzahl Minuten mit Schatten	0	0	412	1267	1243	1665

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_07 - VESTAS V162 7200 162.0 l-! NH: 169,0 m (Ges:250,0 m) (657)
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	08:12 16:01	07:45 15:45-16:16/31 16:49	06:51 16:18-17:06/48 17:41	06:40 19:36	05:35 20:27	04:49 21:13	04:46 21:27	05:23 20:55	06:13 19:53	07:02 18:43	06:57 15:18-16:02/44 16:36	07:48 15:56
2	08:12 16:02	07:43 15:44-16:17/33 16:51	06:49 16:18-17:05/47 17:43	06:38 19:37	05:33 20:28	04:49 21:14	04:47 21:27	05:25 20:53	06:15 19:50	07:04 17:23-17:34/11 18:40	06:58 15:16-15:57/41 16:34	07:49 15:55
3	08:12 16:03	07:42 15:45-16:19/34 16:53	06:47 16:38-17:06/28 17:45 16:21-16:37/16	06:36 19:39	05:31 20:30	04:48 21:15	04:48 21:26	05:26 20:52	06:16 19:48	07:06 17:20-17:36/16 18:38	07:00 15:16-15:51/35 16:33	07:51 15:54
4	08:11 16:05	07:40 15:45-16:19/34 16:55	06:45 16:38-17:06/28 17:47 16:24-16:34/10	06:33 19:41	05:29 20:32	04:47 21:16	04:49 21:26	05:28 20:50	06:18 19:46	07:08 17:18-17:38/20 18:36	07:02 15:15-15:51/36 16:31	07:52 15:54
5	08:11 16:06	07:38 15:45-16:20/35 16:57	06:42 16:38-17:05/27 17:48	06:31 19:42	05:28 20:34	04:46 21:17	04:49 21:25	05:29 20:48	06:20 19:43	07:09 17:17-17:39/22 18:34	07:04 15:15-15:50/35 16:29	07:53 15:53
6	08:11 16:07	07:37 15:45-16:21/36 16:59	06:40 16:38-17:04/26 17:50	06:29 19:44	05:26 20:35	04:46 21:18	04:50 21:25	05:31 20:46	06:21 19:41	07:11 17:15-17:39/24 18:31	07:06 15:15-15:50/35 16:27	07:55 15:53
7	08:11 16:08	07:35 15:46-16:21/35 17:00	06:38 16:38-17:04/26 17:52	06:26 19:46	05:24 20:37	04:45 21:19	04:51 21:24	05:32 20:45	06:23 19:39	07:13 17:14-17:40/26 18:29	07:07 15:15-15:49/34 16:26	07:56 15:52
8	08:10 16:10	07:33 15:47-16:22/35 17:02	06:36 16:39-17:03/24 17:54	06:24 19:48	05:22 20:38	04:45 21:20	04:52 21:24	05:34 20:43	06:25 19:37	07:14 17:13-17:40/27 18:27	07:09 15:15-15:48/33 16:24	07:57 15:52
9	08:10 16:11	07:31 15:48-16:29/41 17:04	06:33 16:40-17:01/21 17:56	06:22 19:49	05:20 20:40	04:44 21:21	04:53 21:23	05:36 20:41	06:26 19:34	07:16 17:13-17:41/28 18:24 17:03-17:04/1	07:11 15:15-15:47/32 16:22	07:58 15:52
10	08:09 16:12	07:30 15:49-16:32/43 17:06	06:31 16:41-16:59/18 17:57	06:20 19:51	05:19 20:42	04:44 21:22	04:54 21:22	05:37 20:39	06:28 19:32	07:18 17:12-17:40/28 18:22 16:56-17:10/14	07:13 15:16-15:46/30 16:21	08:00 15:52
11	08:08 16:14	07:28 15:50-16:34/44 17:08	06:29 16:44-16:57/13 17:59	06:17 19:53	05:17 20:43	04:43 21:22	04:55 21:21	05:39 20:37	06:30 19:30	07:19 16:54-17:40/46 18:20	07:15 15:16-15:45/29 16:19	08:01 15:51
12	08:08 16:15	07:26 15:52-16:36/44 17:10	06:27 16:47-16:52/5 18:01	06:15 19:54	05:15 20:45	04:43 21:23	04:56 21:21	05:41 20:35	06:31 19:27	07:21 16:52-17:39/47 18:18	07:16 15:17-15:43/26 16:17	08:02 15:51
13	08:07 16:17	07:24 15:53-16:37/44 17:12	06:24 18:03	06:13 19:56	05:14 20:47	04:43 21:24	04:57 21:20	05:42 20:33	06:33 19:25	07:23 16:50-17:39/49 18:16	07:18 15:17-15:42/25 16:16	08:03 15:51
14	08:06 16:18	07:22 15:54-16:39/45 17:14	06:22 18:04	06:11 19:58	05:12 20:48	04:42 21:24	04:58 21:19	05:44 20:31	06:34 19:23	07:25 16:48-17:37/49 18:13	07:20 15:17-15:40/23 16:14	08:04 15:51
15	08:06 16:20	07:20 15:56-16:41/45 17:15	06:20 18:06	06:09 20:00	05:10 20:50	04:42 21:25	05:00 21:18	05:45 20:29	06:36 19:20	07:26 16:46-17:37/51 18:11	07:22 15:17-15:39/22 16:13	08:05 15:51
16	08:05 16:21	07:18 15:58-16:42/44 17:17	06:17 18:08	06:06 20:01	05:09 20:51	04:42 21:25	05:01 21:17	05:47 20:27	06:38 19:18	07:28 16:45-17:36/51 18:09	07:24 15:18-15:39/21 16:12	08:06 15:51
17	08:04 16:22	07:16 15:59-16:43/44 17:19	06:15 18:10	06:04 20:03	05:07 20:53	04:42 21:26	05:02 21:16	05:49 20:25	06:39 19:16	07:30 16:44-17:34/50 18:07	07:25 15:19-15:39/20 16:10	08:06 15:51
18	08:03 16:25	15:50-15:51/1 17:21	06:13 18:11	06:02 20:05	05:06 20:54	04:42 21:26	05:03 21:15	05:50 20:23	06:41 19:13	07:32 16:43-17:32/49 18:05	07:27 15:19-15:37/18 16:09	08:07 15:52
19	08:02 16:26	15:48-15:53/5 17:23	06:10 18:13	06:00 20:06	05:04 20:56	04:42 21:27	05:05 21:13	05:52 20:21	06:43 19:11	07:33 16:42-17:16/34 18:02 17:19-17:30/11	07:29 15:19-15:35/16 16:08	08:08 15:52
20	08:01 16:28	15:47-15:55/8 17:25	06:08 18:15	05:58 20:08	05:03 20:57	04:42 21:27	05:06 21:12	05:54 20:19	06:44 19:09	07:35 16:41-17:16/35 18:00	07:30 15:20-15:34/14 16:06	08:08 15:52
21	08:00 16:30	15:46-15:57/11 17:27	06:06 18:17	05:55 20:10	05:02 20:59	04:42 21:27	05:07 21:11	05:55 20:17	06:46 19:06	07:37 16:40-17:15/35 17:58	07:32 15:21-15:33/12 16:05	08:09 15:53
22	07:59 16:31	15:45-15:59/14 17:28 16:52-16:54/2	06:03 18:18	05:53 20:12	05:00 21:00	04:42 21:27	05:09 21:10	05:57 20:15	06:48 19:04	07:39 16:40-17:15/35 17:56	07:34 15:23-15:31/8 16:04	08:10 15:53
23	07:57 16:33	15:45-16:01/16 17:30 16:47-16:59/12	06:01 18:20	05:51 20:13	04:59 21:01	04:43 21:28	05:10 21:08	05:58 20:12	06:49 19:01	07:40 16:33-17:14/41 17:54	07:35 15:25-15:30/5 16:03	08:10 15:54
24	07:56 16:35	15:45-16:03/18 17:32	05:59 18:22	05:49 20:15	04:58 21:03	04:43 21:28	05:11 21:07	06:00 20:10	06:51 18:59	07:42 16:30-17:14/44 17:52	07:37 15:28-15:29/1 16:02	08:10 15:54
25	07:55 16:37	15:45-16:05/20 17:34	05:56 18:24	05:47 20:17	04:57 21:04	04:43 21:28	05:13 21:06	06:02 20:08	06:52 18:57	06:44 15:28-16:13/45 16:50	07:39 15:25-15:30/5 16:01	08:11 15:55
26	07:54 16:38	15:45-16:06/21 17:36	05:54 18:25	05:45 20:18	04:56 21:06	04:44 21:28	05:14 21:04	06:03 20:06	06:54 18:54	06:46 15:27-16:12/45 16:48	07:40 15:25-16:10/45 16:00	08:11 15:56
27	07:52 16:40	15:45-16:06/21 17:38	05:52 18:27	05:43 20:20	04:54 21:07	04:44 21:28	05:16 21:03	06:05 20:04	06:56 18:52	06:48 15:25-16:10/45 16:46	07:42 15:23-16:08/45 15:59	08:12 15:56
28	07:51 16:42	15:45-16:09/24 17:39	05:50 18:29	05:41 20:22	04:53 21:08	04:45 21:28	05:17 21:01	06:07 20:02	06:57 18:50	06:49 15:23-16:08/45 16:44	07:43 15:22-16:06/44 15:57	08:12 15:57
29	07:49 16:44	15:45-16:10/25 17:40	06:47 19:30	05:39 20:23	04:52 21:09	04:45 21:27	05:19 21:00	06:08 19:59	06:59 18:47	06:51 15:22-16:06/44 16:42	07:45 15:21-16:05/44 15:57	08:12 15:58
30	07:48 16:46	15:45-16:12/27 17:41	06:45 19:32	05:37 20:25	04:51 21:11	04:46 21:27	05:20 20:58	06:10 19:57	07:01 18:45	06:53 15:21-16:05/44 16:40	07:46 15:20-16:04/45 15:56	08:12 15:59
31	07:46 16:47	15:45-16:14/29 17:42	06:43 19:34	05:35 20:27	04:50 21:12	04:45 21:27	05:22 20:57	06:12 19:55	07:02 18:45	06:55 15:19-16:04/45 16:38	07:47 15:19-16:04/45 16:00	08:12 16:00
Sonnenscheinstunden	258	277	367	416	486	500	503	454	381	331	266	243
Anzahl Minuten mit Schatten	240	1152	337	0	0	0	0	0	0	1157	595	0

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_08 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (658)

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni
1	08:12 08:45-09:31/46 16:01	07:45 08:24-09:01/37 16:49	06:51 16:46-17:15/29 17:41	06:40 19:36	05:35 20:27	04:50 21:13
2	08:12 08:44-09:30/46 16:02	07:43 08:25-09:00/35 16:51	06:49 16:47-17:15/28 17:43	06:38 19:37	05:33 20:29	04:49 21:14
3	08:12 08:45-09:30/45 16:03	07:42 08:25-08:58/33 16:53	06:47 16:57-17:15/18 17:45	06:36 19:39	05:31 20:30	04:48 21:15
4	08:12 08:45-09:30/45 16:05	07:40 08:26-08:55/29 16:55	06:45 16:57-17:15/18 17:47	06:33 19:41	05:29 20:32	04:47 21:16
5	08:11 08:44-09:29/45 16:06	07:38 08:27-08:53/26 16:57	06:42 16:58-17:15/17 17:48	06:31 19:42	05:28 20:34	04:46 21:17
6	08:11 08:45-09:30/45 16:07	07:37 08:28-08:52/24 16:59	06:40 16:58-17:13/15 17:50	06:29 19:44	05:26 20:35	04:46 21:18
7	08:11 08:44-09:29/45 16:08	07:35 08:43-08:50/7 17:00	06:38 17:00-17:11/11 17:52	06:27 19:46	05:24 20:37	04:45 21:19
8	08:10 08:45-09:28/43 16:10	07:33 08:32-08:40/8 17:02	06:36 17:03-17:08/5 17:54	06:24 19:48	05:22 20:38	04:45 21:20
9	08:10 08:45-09:27/42 16:11	07:31 17:04	06:33 17:56	06:22 19:49	05:20 20:40	04:44 21:21
10	08:09 08:44-09:26/42 16:12	07:30 16:33-16:38/5 17:06	06:31 17:57	06:20 19:51	05:19 20:42	04:44 21:22
11	08:08 08:44-09:25/41 16:14	07:28 16:31-16:40/9 17:08	06:29 17:59	06:17 19:53	05:17 20:43	04:43 21:22
12	08:08 08:43-09:25/42 16:15	07:26 16:30-16:42/12 17:10	06:27 18:01	06:15 19:54	05:15 20:45	04:43 21:23
13	08:07 08:42-09:25/43 16:17	07:24 16:29-16:44/15 17:12	06:24 18:03	06:13 19:56	05:14 20:47	04:43 21:24
14	08:06 08:41-09:24/43 16:18	07:22 16:29-16:46/17 17:14	06:22 18:04	06:11 19:58	05:12 20:48	04:42 21:24
15	08:06 08:40-09:22/42 16:20	07:20 16:29-16:47/18 17:15	06:20 18:06	06:09 20:00	05:10 20:50	04:42 21:25
16	08:05 08:40-09:22/42 16:21	07:18 16:29-16:50/21 17:17	06:17 18:08	06:06 20:01	05:09 20:51	04:42 21:25
17	08:04 08:39-09:21/42 16:23	07:16 16:29-16:52/23 17:19	06:15 18:10	06:04 20:03	05:07 20:53	04:42 21:26
18	08:03 08:37-09:20/43 16:25	07:14 16:29-16:54/25 17:21	06:13 18:11	06:02 20:05	05:06 20:54	04:42 21:26
19	08:02 08:35-09:19/44 16:26	07:12 16:29-16:55/26 17:23	06:10 18:13	06:00 20:06	05:05 20:56	04:42 21:27
20	08:01 08:35-09:19/44 16:28	07:10 16:30-16:57/27 17:25	06:08 18:15	05:58 20:08	05:03 20:57	04:42 21:27
21	08:00 08:34-09:18/44 16:30	07:08 16:32-16:59/27 17:27	06:06 18:17	05:56 20:10	05:02 20:59	04:42 21:27
22	07:59 08:29-09:08/39 16:31	07:06 16:36-16:39/3 17:28	06:03 18:18	05:53 20:12	05:00 21:00	04:42 21:28
23	07:57 08:27-09:07/40 16:33	07:04 16:40-17:03/23 17:30	06:01 18:20	05:51 20:13	04:59 21:01	04:43 21:28
24	07:56 08:26-09:06/40 16:35	07:02 16:40-17:03/23 17:32	05:59 18:22	05:49 20:15	04:58 21:03	04:43 21:28
25	07:55 08:25-09:05/40 16:37	07:00 16:41-17:08/27 17:34	05:57 18:24	05:47 20:17	04:57 21:04	04:43 21:28
26	07:54 08:25-09:04/39 16:38	06:58 16:41-17:09/28 17:36	05:54 18:25	05:45 20:18	04:56 21:06	04:44 21:28
27	07:52 08:24-09:03/39 16:40	06:56 16:42-17:11/29 17:38	05:52 18:27	05:43 20:20	04:54 21:07	04:44 21:28
28	07:51 08:24-09:03/39 16:42	06:53 16:45-17:13/28 17:39	05:50 18:29	05:41 20:22	04:53 21:08	04:45 21:28
29	07:49 08:24-09:03/39 16:44		06:47 19:30	05:39 20:23	04:52 21:09	04:45 21:28
30	07:48 08:25-09:03/38 16:46		06:45 19:32	05:37 20:25	04:51 21:11	04:46 21:27
31	07:46 08:24-09:02/38 16:47		06:43 19:34		04:50 21:12	
Sonnenscheinstunden	258	277	367	416	486	500
Anzahl Minuten mit Schatten	1313	618	141	0	0	0

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_08 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (658)

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

	Jul	August	September	Oktober	November	Dezember
1	04:46 21:27	05:23 20:55	06:13 19:53	07:03 18:43	06:57 16:03-16:07/4 16:36	07:48 08:26-09:07/41 15:56
2	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:41	06:58 16:34	07:49 08:27-09:09/42 15:55
3	04:48 21:26	05:26 20:52	06:16 19:48	07:06 18:38	07:00 08:02-08:10/8 16:33	07:51 08:29-09:10/41 15:54
4	04:49 21:26	05:28 20:50	06:18 19:46	07:08 18:36	07:02 07:59-08:20/21 16:31	07:52 08:29-09:12/43 15:54
5	04:49 21:25	05:29 20:48	06:20 19:44	07:09 18:34	07:04 07:58-08:23/25 16:29	07:53 08:29-09:14/45 15:53
6	04:50 21:25	05:31 20:46	06:21 19:41	07:11 17:37-17:46/9 18:31	07:06 07:57-08:24/27 16:27	07:55 08:31-09:16/45 15:53
7	04:51 21:24	05:33 20:45	06:23 19:39	07:13 17:35-17:48/13 18:29	07:07 07:57-08:25/28 16:26	07:56 08:31-09:16/45 15:52
8	04:52 21:24	05:34 20:43	06:25 19:37	07:14 17:34-17:49/15 18:27	07:09 07:55-08:28/33 16:24	07:57 08:32-09:17/45 15:52
9	04:53 21:23	05:36 20:41	06:26 19:34	07:16 17:33-17:50/17 18:24	07:11 07:55-08:30/35 16:22	07:58 08:34-09:19/45 15:52
10	04:54 21:22	05:37 20:39	06:28 19:32	07:18 17:31-17:49/18 18:22	07:13 07:55-08:32/37 16:21	08:00 08:34-09:20/46 15:52
11	04:55 21:21	05:39 20:37	06:30 19:30	07:19 17:31-17:50/19 18:20 17:23-17:30/7	07:15 07:55-08:33/38 16:19	08:01 08:35-09:21/46 15:51
12	04:56 21:21	05:41 20:35	06:31 19:27	07:21 17:20-17:49/29 18:18	07:16 07:55-08:34/39 16:18	08:02 08:36-09:22/46 15:51
13	04:57 21:20	05:42 20:33	06:33 19:25	07:23 17:18-17:48/30 18:16	07:18 07:56-08:34/38 16:16	08:03 08:37-09:23/46 15:51
14	04:58 21:19	05:44 20:31	06:34 19:23	07:25 17:16-17:44/28 18:13	07:20 07:56-08:35/39 16:15	08:04 08:38-09:25/47 15:51
15	05:00 21:18	05:45 20:29	06:36 19:20	07:26 17:14-17:42/28 18:11	07:22 07:57-08:36/39 16:13	08:05 08:40-08:45/5 15:51 08:46-09:26/40
16	05:01 21:17	05:47 20:27	06:38 19:18	07:28 17:13-17:40/27 18:09	07:24 07:58-08:37/39 16:12	08:05 08:41-08:45/4 15:51 08:47-09:27/40
17	05:02 21:16	05:49 20:25	06:39 19:16	07:30 17:12-17:38/26 18:07	07:25 07:59-08:39/40 16:10	08:06 08:47-09:27/40 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 17:11-17:35/24 18:05	07:27 08:00-08:40/40 16:09	08:07 08:48-09:28/40 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 17:11-17:34/23 18:02	07:29 08:02-08:42/40 16:08	08:08 08:48-09:29/41 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 17:05-17:32/27 18:00	07:30 08:04-08:43/39 16:06 08:44-08:52/8	08:08 08:48-09:29/41 15:52
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:02-17:29/27 17:58	07:32 08:09-08:53/44 16:05	08:09 08:49-09:30/41 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:00-17:27/27 17:56	07:34 08:11-08:55/44 16:04	08:10 08:49-09:31/42 15:53
23	05:10 21:08	05:58 20:12	06:49 19:02	07:40 16:59-17:25/26 17:54	07:35 08:12-08:56/44 16:03	08:10 08:50-09:31/41 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 16:59-17:23/24 17:52	07:37 08:14-08:57/43 16:02	08:10 08:50-09:31/41 15:54
25	05:13 21:06	06:02 20:08	06:53 18:57	06:44 15:58-16:21/23 16:50	07:39 08:17-08:59/42 16:01	08:11 08:51-09:32/41 15:55
26	05:14 21:04	06:03 20:06	06:54 18:54	06:46 15:58-16:19/21 16:48	07:40 08:18-09:00/42 16:00	08:11 08:52-09:32/40 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 15:58-16:17/19 16:46	07:42 08:19-09:01/42 15:59	08:11 08:46-08:49/3 15:56 08:52-09:32/40
28	05:17 21:01	06:07 20:02	06:58 18:50	06:49 15:58-16:15/17 16:44	07:43 08:21-09:03/42 15:58	08:12 08:46-08:51/5 15:57 08:52-09:32/40
29	05:19 21:00	06:08 19:59	06:59 18:47	06:51 15:59-16:13/14 16:42	07:45 08:22-09:05/43 15:57	08:12 08:45-09:32/47 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:00-16:11/11 16:40	07:46 08:24-09:06/42 15:56	08:12 08:45-09:31/46 15:59
31	05:22 20:57	06:12 19:55		06:55 16:01-16:09/8 16:38		08:12 08:45-09:31/46 16:00
Sonnenscheinstunden	503	454	381	331	266	243
Anzahl Minuten mit Schatten	0	0	0	557	1045	1347

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GIII_33 WEA: G_III_10 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (659)
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 Sonneneinstrahlungsrichtung
- Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:12 14:59-15:25/26 16:01	07:45 15:29-15:55/26 16:49 15:56-16:16/20	06:51 17:41 19:36	06:40 20:27 21:13	05:35 21:27 22:13	04:50 22:27 23:13	04:46 23:27 24:13	05:23 24:27 25:13	06:13 25:13 26:00	07:02 26:00 26:47	06:57 15:25-15:49/24 16:36	07:48 14:45-15:19/34 15:56
2	08:12 15:00-15:26/26 16:02	07:43 15:29-15:54/25 16:51 15:55-16:16/21	06:49 17:43 19:37	06:38 20:28 21:14	05:33 21:28 22:14	04:49 22:28 23:14	04:47 23:28 24:14	05:25 24:28 25:14	06:15 25:14 26:01	07:04 26:01 26:48	06:58 15:23-15:48/25 16:34	07:49 14:46-15:17/31 15:55
3	08:12 15:00-15:27/27 16:03	07:42 15:32-15:54/22 16:53 15:55-16:18/23	06:47 17:45 19:39	06:36 20:30 21:15	05:31 21:26 22:11	04:48 22:26 23:11	04:48 23:26 24:11	05:26 24:26 25:11	06:16 25:11 26:02	07:06 26:02 26:49	07:00 15:23-15:48/25 16:33	07:51 14:46-15:14/28 15:54
4	08:11 15:01-15:28/27 16:05	07:40 15:33-15:53/20 16:55 15:54-16:18/24	06:45 17:47 19:41	06:33 20:32 21:16	05:29 21:26 22:10	04:47 22:26 23:10	04:49 23:26 24:10	05:28 24:26 25:10	06:18 25:10 26:03	07:08 26:03 26:50	07:02 15:23-15:48/25 16:31	07:52 14:47-15:15/28 15:54
5	08:11 15:01-15:28/27 16:06	07:38 15:34-15:52/18 16:57 15:54-16:19/25	06:42 17:48 19:42	06:31 20:33 21:17	05:28 21:27 22:11	04:46 22:27 23:11	04:49 23:27 24:11	05:29 24:27 25:11	06:20 25:11 26:04	07:09 26:04 26:51	07:04 15:23-15:48/25 16:29	07:53 14:47-15:15/28 15:53
6	08:11 15:02-15:29/27 16:07	07:37 15:54-16:19/25 16:59 15:35-15:51/16	06:40 17:50 19:44	06:29 20:35 21:18	05:26 21:25 22:08	04:46 22:25 23:08	04:50 23:25 24:08	05:31 24:08 24:51	06:21 25:08 25:51	07:11 26:04 26:51	07:06 15:03-15:22/19 16:27	07:55 14:48-15:16/28 15:53
7	08:10 15:01-15:30/29 16:08	07:35 15:54-16:19/25 17:00 15:37-15:48/11	06:38 17:52 19:46	06:26 20:37 21:19	05:24 21:24 22:06	04:45 22:24 23:06	04:51 23:24 24:06	05:33 24:06 24:49	06:23 25:06 25:49	07:13 26:06 26:53	07:07 15:02-15:23/21 16:26	07:56 14:48-15:15/27 15:52
8	08:10 15:01-15:30/29 16:10	07:33 15:55-16:20/25 17:02	06:36 17:54 19:48	06:24 20:38 21:20	05:22 21:24 22:06	04:45 22:24 23:06	04:52 23:24 24:06	05:34 24:06 24:49	06:25 25:09 25:52	07:14 26:07 26:54	07:09 15:01-15:24/23 16:24	07:57 14:48-15:15/27 15:52
9	08:10 15:03-15:31/28 16:11	07:31 15:55-16:19/24 17:04	06:33 17:56 19:49	06:22 20:40 21:21	05:20 21:23 22:04	04:44 22:23 23:04	04:53 23:23 24:04	05:36 24:04 24:47	06:26 25:11 25:54	07:16 26:09 26:56	07:11 15:00-15:25/25 16:22	07:58 14:48-15:15/27 15:52
10	08:09 15:03-15:33/30 16:12	07:30 15:55-16:19/24 17:06	06:31 17:57 19:51	06:20 20:42 21:22	05:19 21:22 22:03	04:44 22:22 23:03	04:54 23:22 24:03	05:37 24:03 24:46	06:28 25:16 25:59	07:18 26:14 27:01	07:13 14:59-15:26/27 16:21	08:00 14:50-15:16/26 15:52
11	08:08 15:03-15:37/34 16:14	07:28 15:56-16:19/23 17:08	06:29 17:59 19:53	06:17 20:43 21:22	05:17 21:22 22:03	04:43 22:22 23:03	04:55 23:22 24:03	05:39 24:03 24:46	06:30 25:18 26:01	07:19 26:14 27:01	07:15 14:59-15:26/27 16:19	08:01 14:50-15:16/26 15:51
12	08:08 15:03-15:39/36 16:15	07:26 15:56-16:18/22 17:10	06:27 17:59 19:53	06:15 20:43 21:22	05:15 21:22 22:03	04:43 22:22 23:03	04:56 23:22 24:03	05:41 24:03 24:46	06:31 25:19 26:02	07:21 26:14 27:01	07:16 14:58-15:27/29 16:17	08:02 14:51-15:16/25 15:51
13	08:07 15:05-15:41/36 16:17	07:24 15:57-16:17/20 17:12	06:24 18:01 19:54	06:13 20:45 21:23	05:14 21:23 22:04	04:43 22:23 23:04	04:57 23:23 24:04	05:42 24:04 24:47	06:33 25:20 26:03	07:23 26:14 27:01	07:18 14:58-15:27/29 16:16	08:03 14:51-15:16/25 15:51
14	08:06 15:05-15:42/37 16:18	07:22 15:59-16:16/17 17:14	06:22 18:04 19:58	06:11 20:46 21:24	05:12 21:24 22:05	04:42 22:24 23:05	04:58 23:24 24:05	05:44 24:05 24:49	06:34 25:22 26:05	07:25 26:14 27:01	07:20 14:57-15:23/30 16:14	08:04 14:52-15:16/24 15:51
15	08:06 15:06-15:44/38 16:20	07:20 16:00-16:14/14 17:15	06:20 18:06 19:59	06:09 20:50 21:25	05:10 21:25 22:06	04:42 22:25 23:06	05:00 23:25 24:06	05:45 24:06 24:51	06:36 25:24 26:07	07:26 26:14 27:01	07:22 14:53-15:27/34 16:13	08:05 14:52-15:16/24 15:51
16	08:05 15:07-15:45/38 16:21	07:18 16:03-16:11/8 17:17	06:17 18:08 19:59	06:06 20:51 21:25	05:09 21:25 22:06	04:42 22:25 23:06	05:01 23:25 24:06	05:47 24:06 24:51	06:38 25:26 26:09	07:28 26:14 27:01	07:23 14:52-15:28/36 16:12	08:05 14:52-15:15/23 15:51
17	08:04 15:07-15:46/39 16:23	07:16 17:19 19:13	06:15 18:10 20:03	06:04 20:52 21:26	05:07 21:26 22:07	04:42 22:26 23:07	05:02 23:26 24:07	05:49 24:07 24:52	06:39 25:28 26:11	07:30 26:14 27:01	07:25 14:51-15:28/37 16:10	08:06 14:53-15:16/23 15:52
18	08:03 15:07-15:47/40 16:25	07:14 17:21 19:17	06:13 18:11 20:05	06:02 20:54 21:26	05:06 21:26 22:07	04:42 22:26 23:07	05:03 23:26 24:07	05:50 24:07 24:52	06:41 25:29 26:12	07:32 26:14 27:01	07:27 14:50-15:28/38 16:09	08:07 14:54-15:16/22 15:52
19	08:02 15:09-15:49/40 16:26	07:12 17:23 19:19	06:10 18:13 20:06	06:00 20:56 21:27	05:04 21:27 22:08	04:42 22:27 23:08	05:05 23:27 24:08	05:52 24:08 24:53	06:43 25:30 26:13	07:33 26:14 27:01	07:29 14:49-15:27/39 16:08	08:08 14:55-15:17/22 15:52
20	08:01 15:10-15:50/40 16:28	07:10 17:25 19:21	06:08 18:15 20:08	05:58 20:57 21:27	05:03 21:27 22:08	04:42 22:27 23:08	05:06 23:27 24:08	05:54 24:08 24:53	06:44 25:32 26:15	07:35 26:14 27:01	07:30 14:47-15:26/39 16:06	08:08 14:55-15:17/22 15:52
21	08:00 15:12-15:51/39 16:30	07:08 17:27 19:23	06:06 18:17 20:10	05:56 20:59 21:27	05:02 21:27 22:08	04:42 22:27 23:08	05:07 23:27 24:08	05:55 24:08 24:53	06:46 25:34 26:17	07:37 26:14 27:01	07:32 14:47-15:26/39 16:05	08:09 14:55-15:17/22 15:53
22	07:59 15:12-15:51/39 16:31	07:06 17:28 19:24	06:03 18:18 20:12	05:53 21:00 21:27	05:00 21:27 22:08	04:42 22:27 23:08	05:09 23:27 24:08	05:57 24:08 24:53	06:48 25:36 26:19	07:39 26:14 27:01	07:34 14:46-15:26/40 16:04	08:10 14:55-15:17/22 15:53
23	07:57 15:14-15:53/39 16:33	07:04 17:30 19:26	06:01 18:20 20:13	05:51 21:01 21:28	04:59 21:28 22:09	04:43 22:28 23:09	05:10 23:28 24:09	05:58 24:09 24:54	06:49 25:38 26:21	07:40 26:14 27:01	07:35 14:46-15:26/40 16:03	08:10 14:57-15:19/22 15:54
24	07:56 15:16-15:54/38 16:35	07:02 17:32 19:28	06:00 18:22 20:15	05:49 21:03 21:28	04:58 21:28 22:09	04:43 22:28 23:09	05:11 23:28 24:09	06:00 24:09 24:54	06:51 25:39 26:22	07:42 26:14 27:01	07:37 14:45-15:25/40 16:02	08:10 14:57-15:19/22 15:54
25	07:55 15:17-15:54/37 16:37	07:00 17:34 19:30	05:56 18:24 20:17	05:47 21:04 21:28	04:57 21:28 22:09	04:43 22:28 23:09	05:13 23:28 24:09	06:02 24:09 24:54	06:52 25:40 26:23	07:44 26:14 27:01	07:39 14:44-15:24/40 16:01	08:11 14:57-15:19/22 15:55
26	07:54 15:19-15:55/36 16:38	06:58 17:36 19:32	05:54 18:25 20:18	05:45 21:06 21:28	04:56 21:28 22:09	04:44 22:28 23:09	05:14 23:28 24:09	06:03 24:09 24:54	06:54 25:42 26:25	07:46 26:14 27:01	06:46 15:32-15:42/10 16:00	08:11 14:58-15:21/23 15:56
27	07:52 15:21-15:54/33 16:40	06:56 17:38 19:34	05:52 18:27 20:20	05:43 21:07 21:28	04:54 21:28 22:09	04:44 22:28 23:09	05:16 23:28 24:09	06:05 24:09 24:54	06:56 25:44 26:27	07:48 26:14 27:01	06:48 15:29-15:44/15 16:00	08:11 14:58-15:21/23 15:56
28	07:51 15:25-15:55/30 16:42	06:53 17:39 19:35	05:50 18:29 20:22	05:41 21:08 21:28	04:53 21:28 22:09	04:45 22:28 23:09	05:17 23:28 24:09	06:07 24:09 24:54	06:57 25:46 26:29	07:50 26:14 27:01	06:49 15:28-15:46/18 16:00	08:12 14:58-15:22/24 15:57
29	07:49 15:26-15:55/29 16:44	06:51 17:39 19:35	06:47 18:29 20:22	05:39 21:08 21:28	04:52 21:28 22:09	04:45 22:28 23:09	05:19 23:28 24:09	06:08 24:09 24:54	06:59 25:48 26:31	07:52 26:14 27:01	06:51 15:27-15:47/20 16:00	08:12 14:59-15:23/24 15:58
30	07:48 15:26-15:55/29 16:46	06:50 17:39 19:35	06:45 18:29 20:22	05:37 21:08 21:28	04:51 21:28 22:09	04:46 22:28 23:09	05:20 23:28 24:09	06:10 24:09 24:54	07:01 25:48 26:31	07:53 26:14 27:01	06:53 15:26-15:48/22 16:00	08:12 14:59-15:23/24 15:58
31	07:46 15:28-15:55/27 16:47	06:48 17:39 19:35	06:43 18:29 20:22	06:43 21:08 21:28	04:50 21:28 22:09	04:45 22:28 23:09	05:22 23:28 24:09	06:12 24:09 24:54	07:02 25:48 26:31	07:54 26:14 27:01	06:55 15:25-15:48/23 16:00	08:12 14:59-15:24/25 16:00
Sonnenscheinstunden	258	277	367	416	486	500	503	454	381	331	266	243
Anzahl Minuten mit Schatten	1079	478	367	0	0	0	0	0	0	108	1151	773

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GII_33 WEA: G_II_04 - VESTAS V162 7200 162.0 !-! NH: 169,0 m (Ges:250,0 m) (649)
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	08:12 14:58-15:20/22	07:45 16:49	06:51 17:41	06:40 19:36	05:35 20:27	04:50 21:13	04:46 21:27	05:23 20:55	06:13 19:53	07:02 18:43	06:57 16:36	07:48 14:46-15:06/20
	16:01	16:49	17:41	19:36	20:27	21:13	21:27	20:55	19:53	18:43	16:36	15:56 15:07-15:22/15
2	08:12 14:58-15:21/23	07:43 16:49	06:38 17:43	06:38 19:37	05:33 20:28	04:49 21:14	04:47 21:27	05:25 20:53	06:15 19:50	07:04 18:40	06:58 16:34	07:49 14:47-15:07/20
	16:02	16:51	17:43	19:37	20:28	21:14	21:27	20:53	19:50	18:40	16:34	15:55 15:09-15:21/12
3	08:12 14:59-15:22/23	07:42 16:47	06:36 17:45	06:36 19:39	05:31 20:30	04:48 21:15	04:48 21:26	05:26 20:52	06:16 19:48	07:06 18:38	07:00 16:33	07:51 14:46-15:07/21
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5	08:11 15:00-15:23/23	07:38 16:42	06:31 17:42	06:31 19:38	05:28 20:28	04:46 21:19	04:49 21:24	05:29 20:50	06:20 19:46	07:09 18:36	07:04 16:31	07:53 14:47-15:08/21
	16:06	16:57	17:48	19:42	20:33	21:17	21:25	20:48	19:43	18:34	16:29	15:53 15:11-15:19/8
6	08:11 15:01-15:23/22	07:37 16:40	06:29 17:40	06:29 19:36	05:26 20:26	04:46 21:18	04:50 21:25	05:31 20:46	06:21 19:41	07:11 18:31	07:06 16:27	07:55 14:47-15:10/23
	16:07	16:59	17:50	19:44	20:35	21:18	21:25	20:46	19:41	18:31	16:27	15:53 15:13-15:19/6
7	08:10 15:01-15:23/22	07:35 16:38	06:26 17:35	06:26 19:31	05:24 20:24	04:45 21:16	04:51 21:23	05:33 20:41	06:23 19:39	07:13 18:29	07:07 16:26	07:56 14:47-15:10/23
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13	08:07 15:07-15:25/18	07:24 16:24	06:13 17:21	06:13 19:17	05:14 20:14	04:43 21:05	04:57 21:12	05:42 20:44	06:33 19:33	07:23 18:16	07:18 16:16	08:03 14:50-15:12/22
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23	07:57 15:29-15:47/18	07:04 16:01	05:51 17:22	05:51 19:09	04:59 20:01	04:43 21:04	05:10 21:05	05:58 20:59	06:49 19:49	07:40 18:17	07:35 15:04-15:24/20	08:10 14:54-15:17/23
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24	07:56 15:31-15:47/16	07:02 16:00	05:59 17:28	05:59 19:15	04:58 20:03	04:43 21:04	05:11 21:09	06:00 20:12	06:51 19:51	07:42 18:18	07:37 15:04-15:24/20	08:10 14:54-15:17/23
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27	07:52 15:35-15:43/8	06:56 16:56	05:52 17:30	05:52 19:17	04:54 20:08	04:44 21:09	05:16 21:14	06:05 20:17	06:56 19:56	07:42 18:16	07:42 14:48-15:03/15	08:11 14:56-15:19/23
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28	07:51 16:42	06:53 17:39	05:50 18:29	05:50 20:16	04:53 20:22	04:45 21:03	05:17 21:08	06:07 20:20	06:57 19:50	07:43 18:16	07:43 14:47-15:03/16	08:12 14:56-15:19/23
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29	07:49 16:44	06:47 17:30	05:47 18:20	05:47 20:07	04:52 20:23	04:45 21:01	05:19 21:06	06:08 20:18	06:59 19:59	07:45 18:16	07:45 14:47-15:05/18	08:12 14:57-15:19/22
	16:44	17:37	18:27	20:20	21:09	21:27	21:00	19:59	18:47	17:42	15:57 15:06-15:24/18	15:58
30	07:48 16:46	06:45 17:32	05:46 18:22	05:46 20:09	04:51 20:24	04:46 21:02	05:20 21:07	06:10 20:19	07:01 19:57	07:46 18:16	07:46 14:47-15:06/19	08:12 14:57-15:20/23
	16:46	17:39	18:29	20:22	21:08	21:28	21:01	20:02	18:50	17:44	15:58 15:05-15:24/19	15:57
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	16:47	17:40	18:30	20:23	21:12	21:30	21:03	20:04	18:51	17:46	15:58 15:06-15:24/19	15:58
Sonnenscheinstunden	258	277	367	416	486	500	503	454	381	331	266	243
Anzahl Minuten mit Schatten	687	0	0	0	0	0	0	0	0	0	378	765

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GII_33 WEA: G_II_13 - VESTAS V150 6000 150.0 !-! NH: 169,0 m (Ges:244,0 m) (650)

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

	Januar	Februar	März	April	Mai	Juni
1	08:12 08:56-09:30/34 16:01	07:45 16:49	06:51 17:41	06:40 19:36	05:35 06:08-06:30/22 20:27	04:50 21:13
2	08:12 08:55-09:29/34 16:02	07:43 16:51	06:49 17:43	06:38 19:37	05:33 06:08-06:30/22 20:29	04:49 21:14
3	08:12 08:56-09:30/34 16:04	07:42 16:53	06:47 17:45	06:36 19:39	05:31 06:07-06:30/23 20:30	04:48 21:15
4	08:12 08:56-09:31/35 16:05	07:40 16:55	06:45 17:47	06:33 19:41	05:30 06:07-06:30/23 20:32	04:47 21:16
5	08:11 08:56-09:30/34 16:06	07:38 16:57	06:42 17:49	06:31 19:43	05:28 06:08-06:30/22 20:34	04:47 21:17
6	08:11 08:57-09:31/34 16:07	07:37 16:59	06:40 17:50	06:29 19:44	05:26 06:08-06:29/21 20:35	04:46 21:18
7	08:11 08:56-09:30/34 16:08	07:35 17:01	06:38 17:52	06:27 19:46	05:24 06:08-06:29/21 20:37	04:45 21:19
8	08:10 08:57-09:31/34 16:10	07:33 17:02	06:36 17:54	06:24 19:48	05:22 06:09-06:29/20 20:39	04:45 21:20
9	08:10 08:57-09:30/33 16:11	07:32 17:04	06:33 17:56	06:22 19:49	05:21 06:09-06:28/19 20:40	04:44 21:21
10	08:09 08:57-09:30/33 16:13	07:30 17:06	06:31 17:57	06:20 19:51	05:19 06:09-06:26/17 20:42	04:44 21:22
11	08:09 08:57-09:29/32 16:14	07:28 17:08	06:29 17:59	06:18 19:53	05:17 06:11-06:26/15 20:43	04:43 21:22
12	08:08 08:59-09:29/30 16:15	07:26 17:10	06:27 18:01	06:15 19:55	05:15 06:12-06:24/12 20:45	04:43 21:23
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15	08:06 09:00-09:26/26 16:20	07:20 17:16	06:20 18:06	06:09 20:00	05:11 20:50	04:42 21:25
16	08:05 09:00-09:25/25 16:22	07:18 17:17	06:17 18:08	06:06 20:01	05:09 20:51	04:42 21:26
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23	07:57 09:06-09:21/15 16:33	07:04 17:30	06:01 18:20	05:51 20:13	04:59 21:02	04:43 21:28
24	07:56 09:08-09:20/12 16:35	07:02 17:32	05:59 18:22	05:49 20:15	04:58 21:03	04:43 21:28
25	07:55 09:10-09:17/7 16:37	07:00 17:34	05:57 18:24	05:47 20:17	04:57 06:18-06:22/4 21:04	04:44 21:28
26	07:54 16:39	06:58 17:36	05:54 18:25	05:45 20:18	04:56 06:14-06:25/11 21:06	04:44 21:28
27	07:52 16:40	06:56 17:38	05:52 18:27	05:43 20:20	04:55 06:12-06:27/15 21:07	04:44 21:28
28	07:51 16:42	06:53 17:40	05:50 18:29	05:41 20:22	04:54 06:10-06:28/18 21:08	04:45 21:28
29	07:49 16:44		06:47 19:31	05:39 20:24	04:52 06:09-06:29/20 21:09	04:45 21:28
30	07:48 16:46		06:45 19:32	05:37 20:25	04:52 06:09-06:30/21 21:11	04:46 21:27
31	07:46 16:48		06:43 19:34		04:51 21:12	
Sonnenscheinstunden	258	277	367	416	486	500
Anzahl Minuten mit Schatten	667	0	0	89	245	0

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Kalender pro WEA

Berechnung: ZB Layout GII_33 WEA: G_II_13 - VESTAS V150 6000 150.0 !-! NH: 169,0 m (Ges:244,0 m) (650)

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 Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

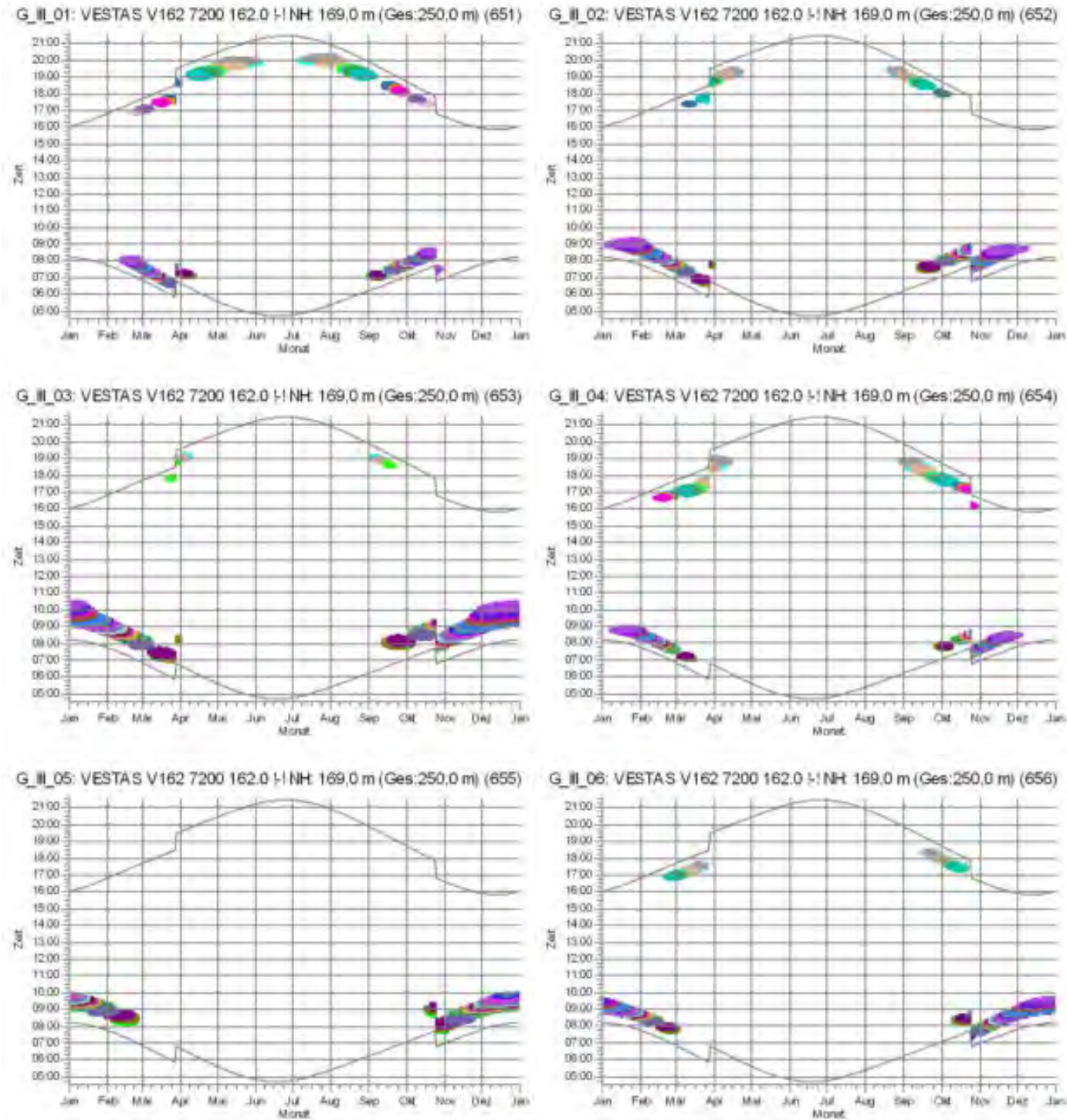
	Juli	August	September	Oktober	November	Dezember
1	04:47 21:27	05:23 06:22-06:35/13 20:55	06:13 19:53	07:03 18:43	06:57 16:36	07:48 08:39-09:11/32 15:56
2	04:47 21:27	05:25 06:21-06:37/16 20:53	06:15 19:50	07:04 18:41	06:59 16:35	07:49 08:40-09:13/33 15:55
3	04:48 21:26	05:26 06:19-06:37/18 20:52	06:17 19:48	07:06 18:38	07:00 16:33	07:51 08:40-09:13/33 15:55
4	04:49 21:26	05:28 06:19-06:38/19 20:50	06:18 19:46	07:08 18:36	07:02 16:31	07:52 08:41-09:15/34 15:54
5	04:50 21:25	05:30 06:18-06:38/20 20:48	06:20 19:44	07:09 18:34	07:04 16:29	07:54 08:41-09:15/34 15:53
6	04:50 21:25	05:31 06:18-06:39/21 20:46	06:22 19:41	07:11 18:31	07:06 16:27	07:55 08:43-09:17/34 15:53
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10	04:54 21:22	05:37 06:17-06:39/22 20:39	06:28 19:32	07:18 18:22	07:13 16:21	08:00 08:45-09:19/34 15:52
11	04:55 21:22	05:39 06:16-06:39/23 20:37	06:30 19:30	07:20 18:20	07:15 16:19	08:01 08:46-09:20/34 15:52
12	04:56 21:21	05:41 06:17-06:39/22 20:35	06:31 19:27	07:21 18:18	07:17 16:18	08:02 08:46-09:21/35 15:51
13	04:57 21:20	05:42 06:17-06:37/20 20:33	06:33 19:25	07:23 18:16	07:18 16:16	08:03 08:47-09:21/34 15:51
14	04:59 21:19	05:44 06:18-06:37/19 20:31	06:35 19:23	07:25 18:13	07:20 16:15	08:04 08:47-09:22/35 15:51
15	05:00 21:18	05:46 06:18-06:35/17 20:29	06:36 19:20	07:26 18:11	07:22 16:13	08:05 08:48-09:23/35 15:51
16	05:01 21:17	05:47 06:20-06:34/14 20:27	06:38 19:18	07:28 18:09	07:24 16:12	08:05 08:49-09:23/34 15:52
17	05:02 21:16	05:49 06:21-06:31/10 20:25	06:39 19:16	07:30 18:07	07:25 08:44-08:51/7 16:10	08:06 08:49-09:23/34 15:52
18	05:03 21:15	05:50 20:23	06:41 19:13	07:32 18:05	07:27 08:42-08:54/12 16:09	08:07 08:50-09:24/34 15:52
19	05:05 21:14	05:52 20:21	06:43 19:11	07:33 18:03	07:29 08:41-08:56/15 16:08	08:08 08:50-09:25/35 15:52
20	05:06 21:12	05:54 20:19	06:44 19:09	07:35 18:00	07:30 08:40-08:57/17 16:07	08:08 08:50-09:25/35 15:53
21	05:07 21:11	05:55 20:17	06:46 19:06	07:37 17:58	07:32 08:39-08:58/19 16:05	08:09 08:51-09:25/34 15:53
22	05:09 21:10	05:57 20:15	06:48 19:04	07:39 17:56	07:34 08:39-08:59/20 16:04	08:10 08:51-09:25/34 15:53
23	05:10 21:09	05:59 20:13	06:49 19:02	07:41 17:54	07:35 08:39-09:00/21 16:03	08:10 08:52-09:27/35 15:54
24	05:11 21:07	06:00 20:10	06:51 18:59	07:42 17:52	07:37 08:39-09:02/23 16:02	08:11 08:52-09:27/35 15:55
25	05:13 21:06	06:02 20:08	06:53 18:57	06:44 16:50	07:39 08:39-09:03/24 16:01	08:11 08:54-09:28/34 15:55
26	05:14 21:04	06:04 20:06	06:54 18:55	06:46 16:48	07:40 08:38-09:03/25 16:00	08:11 08:54-09:28/34 15:56
27	05:16 21:03	06:05 20:04	06:56 18:52	06:48 16:46	07:42 08:39-09:05/26 15:59	08:11 08:54-09:28/34 15:57
28	05:17 21:01	06:07 20:02	06:58 18:50	06:49 16:44	07:43 08:39-09:07/28 15:58	08:12 08:54-09:28/34 15:57
29	05:19 21:00	06:08 19:59	06:59 18:48	06:51 16:42	07:45 08:39-09:08/29 15:57	08:12 08:54-09:29/35 15:58
30	05:20 20:58	06:10 19:57	07:01 18:45	06:53 16:40	07:47 08:40-09:10/30 15:57	08:12 08:55-09:29/34 15:59
31	05:22 20:57	06:12 19:55		06:55 16:38		08:12 08:55-09:29/34 16:00
Sonnenscheinstunden	503	454	381	331	266	243
Anzahl Minuten mit Schatten	11	322	0	0	296	1059

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-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten
	Sonnenuntergang (SS:MM)	Zeitpunkt (SS:MM)	Schattenanfang-Zeitpunkt (SS:MM)	Schattenende/Minuten mit Schatten

SHADOW - Grafischer Kalender pro WEA

Berechnung: ZB Layout GII_33

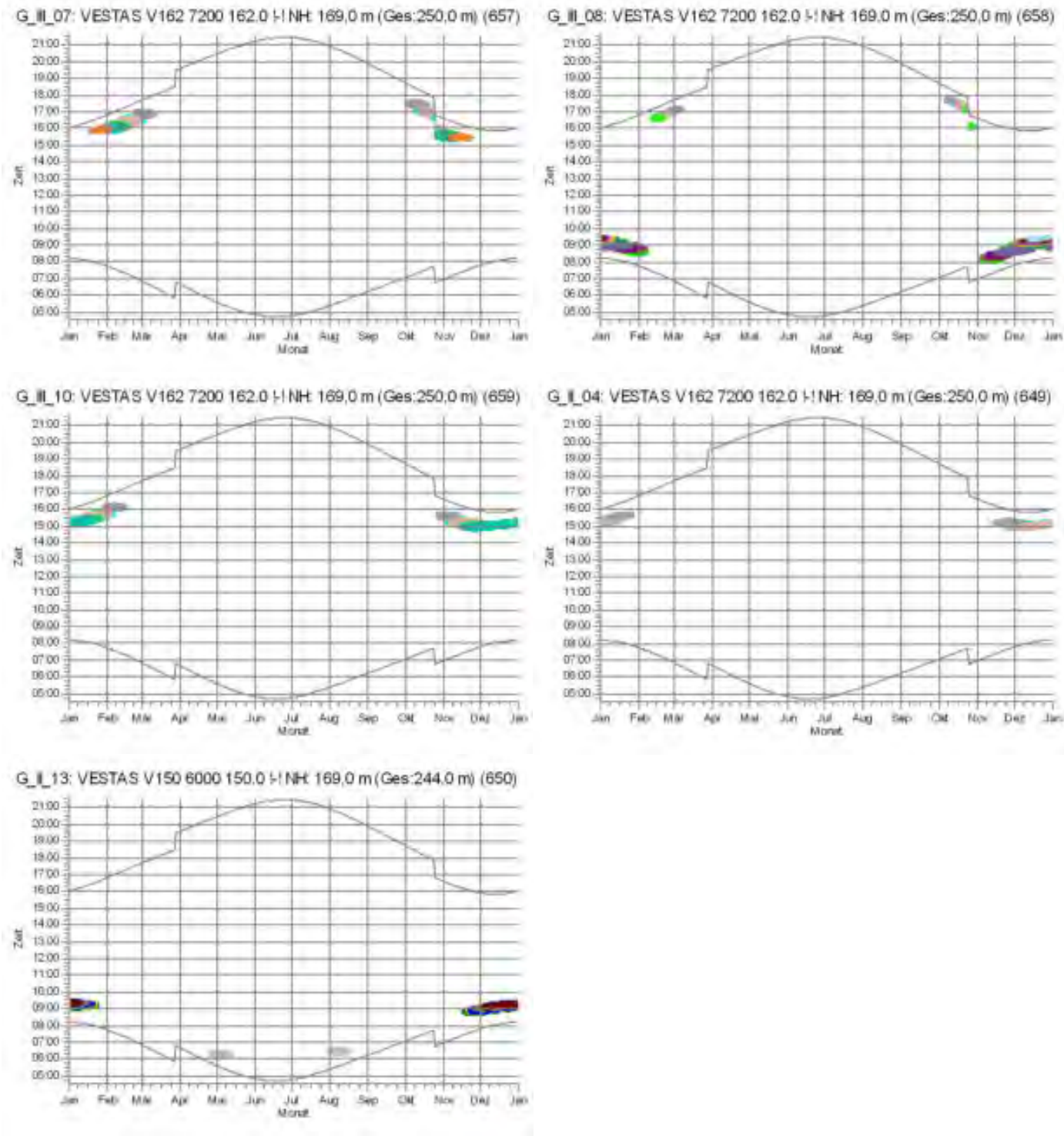


Schattenrezeptoren

IO 09: Günthersdorf 16	IO 20: Weichensdorf, Dorfstraße 47	IO 29: Friedland, Günthersdorf 10	IO 38: Friedland, Günthersdorf 2
IO 10: Günthersdorf 15	IO 21: Weichensdorf, Dorfstraße 48A	IO 30: Friedland, Günthersdorf 9	IO 39: Friedland, Günthersdorf 1
IO 11: Günthersdorf 14	IO 22: Weichensdorf, Dorfstraße 15	IO 31: Friedland, Günthersdorf 8B	IO 40: Friedland, Günthersdorf 44
IO 13: Weichensdorf, Dorfstraße 53	IO 23: Weichensdorf, Dorfstraße 15A	IO 32: Friedland, Günthersdorf 8	IO 41: Friedland, Günthersdorf 45
IO 14: Weichensdorf, Dorfstraße 48	IO 24: Weichensdorf, Dorfstraße 10A	IO 33: Friedland, Günthersdorf 7	IO 42: Friedland, Günthersdorf 46
IO 16: Weichensdorf, Dorfstraße 63	IO 25: Weichensdorf, Dorfstraße 1	IO 34: Friedland, Günthersdorf 6	IO 43: Friedland, Günthersdorf 48
IO 17: Weichensdorf, Dorfstraße 50	IO 26: Friedland, Günthersdorf 13	IO 35: Friedland, Günthersdorf 5	IO 44: Friedland, Günthersdorf 21
IO 18: Weichensdorf, Dorfstraße 45	IO 27: Friedland, Günthersdorf 12	IO 36: Friedland, Günthersdorf 4	IO 45: Weichensdorf, Dorfstraße 3
IO 19: Weichensdorf, Dorfstraße 46	IO 28: Friedland, Günthersdorf 11	IO 37: Friedland, Günthersdorf 3	

SHADOW - Grafischer Kalender pro WEA

Berechnung: ZB Layout GII_33

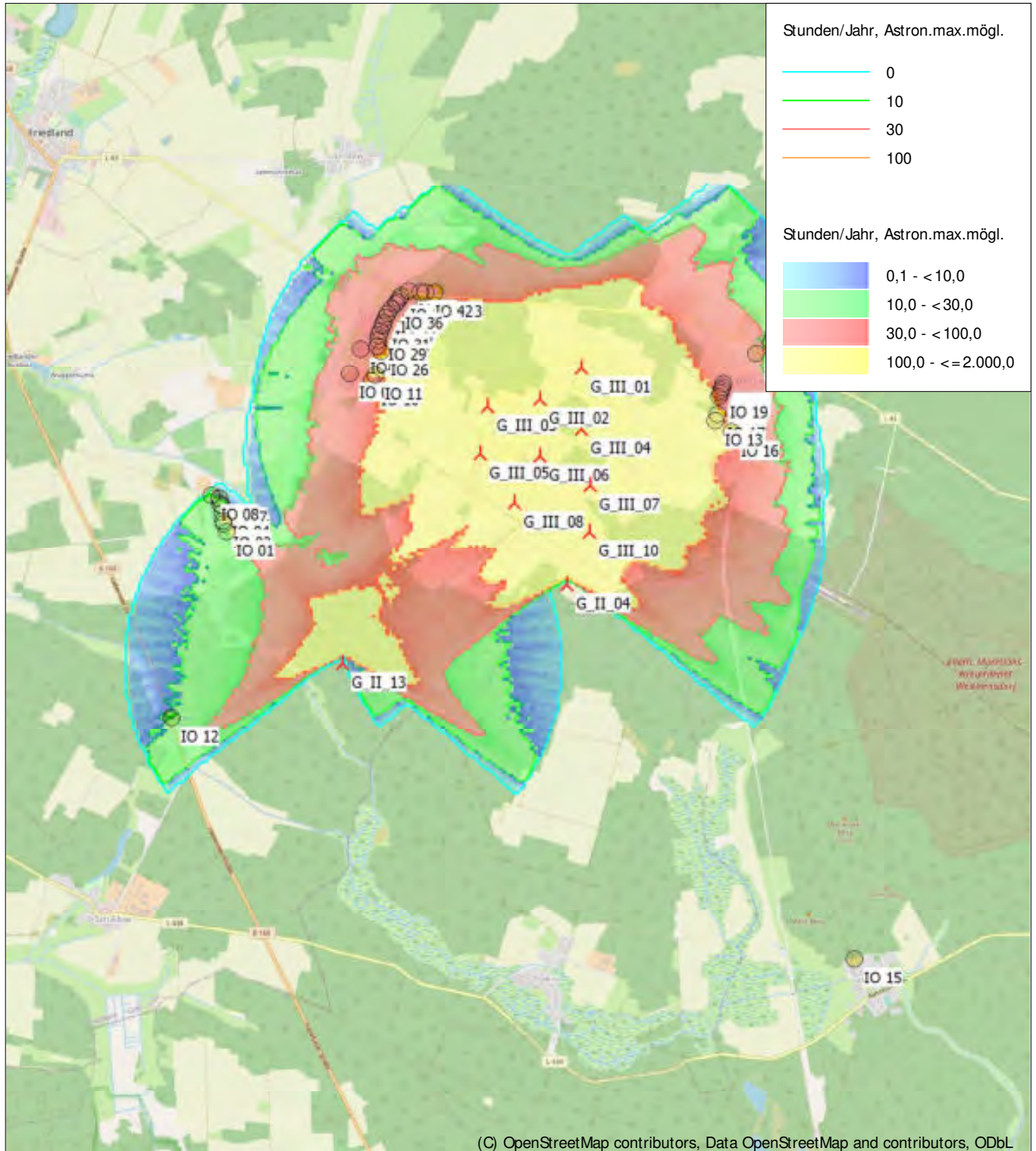


Schattenrezeptoren

IO 01: Karras, Dorfstraße 6	IO 09: Günthersdorf 16	IO 18: Weichensdorf, Dorfstraße 45	IO 28: Friedland, Günthersdorf 11
IO 02: Karras, Dorfstraße 5a	IO 10: Günthersdorf 15	IO 19: Weichensdorf, Dorfstraße 46	IO 29: Friedland, Günthersdorf 10
IO 03: Karras, Dorfstraße 5	IO 11: Günthersdorf 14	IO 20: Weichensdorf, Dorfstraße 47	IO 30: Friedland, Günthersdorf 9
IO 04: Karras, Dorfstraße 4	IO 12: Postbrücke 1	IO 21: Weichensdorf, Dorfstraße 48A	IO 31: Friedland, Günthersdorf 8B
IO 05: Karras, Dorfstraße 2	IO 13: Weichensdorf, Dorfstraße 53	IO 22: Weichensdorf, Dorfstraße 15	IO 32: Friedland, Günthersdorf 8
IO 06: Karras, Dorfstraße 2a	IO 14: Weichensdorf, Dorfstraße 48	IO 23: Weichensdorf, Dorfstraße 15A	IO 33: Friedland, Günthersdorf 7
IO 07: Karras, Dorfstraße 1	IO 16: Weichensdorf, Dorfstraße 63	IO 26: Friedland, Günthersdorf 13	IO 44: Friedland, Günthersdorf 21
IO 08: Karras, Dorfstraße 10	IO 17: Weichensdorf, Dorfstraße 50	IO 27: Friedland, Günthersdorf 12	

SHADOW - Karte

Berechnung: ZB Layout GII_33



0 500 1000 1500 2000 m

Neue WEA

Schattenrezeptor

Karte: EMD OpenStreetMap , Maßstab 1:50.000, Mitte: UTM (north)-ETRS89 Zone: 33 Ost: 453.690 Nord: 5.769.119

Höhe der Schattenkarte: Höhenraster-Objekt: TrebitzIII_EMDGrid_0.wpg (1)

Zeitschritt: 4 Minuten, Schrittweite: 14 Tag(e), Kartenauflösung: 30 m, Sichtbarkeit Auflösung: 15 m, Augenhöhe: 1,5 m