

SHADOW - Hauptergebnis

Berechnung: 241_16_702_Schatten_Oberfeld
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

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsstunden ermittelt aus WEA in Berechnung und Windverteilung:
MAST_2015_2016_Oberf_gefilt_LANG_Erg

Betriebsdauer je Sektor
N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

Eine WEA wird nicht berücksichtigt, wenn sie von keinem Teil der
Rezeptorfläche aus sichtbar ist. Die Sichtbarkeitsberechnung basiert auf
den folgenden Annahmen:
Verwendete Höhenlinien: Höhenlinien: Appenzell_Hoe 5m_10_R30km
Areal-Objekt(e) verwendet in Berechnung:
Waelder App_2022
Rasterauflösung: 1,0 m

Alle Koordinatenangaben in:
Swiss (LV95)-CH1903+ (CH/LI 1993)

WEA

O	N	Z	Beschreibung	WEA-Typ			Nennleistung	Rotor-durchmesser	Nabenhöhe	Schattendaten	
				Aktuell	Hersteller	Typ				Beschatt.-Bereich	U/min
							[kW]	[m]	[m]	[m]	[U/min]
1	2.757.344	1.252.243	1.106,2 WEA 1	Ja	ENERCON	E-138 EP3 E3-4.260	4.260	138,3	131,0	1.688	11,1
2	2.757.070	1.252.554	1.110,0 WEA 2	Ja	ENERCON	E-138 EP3 E3-4.260	4.260	138,3	131,0	1.688	11,1

Schattenrezeptor-Eingabe

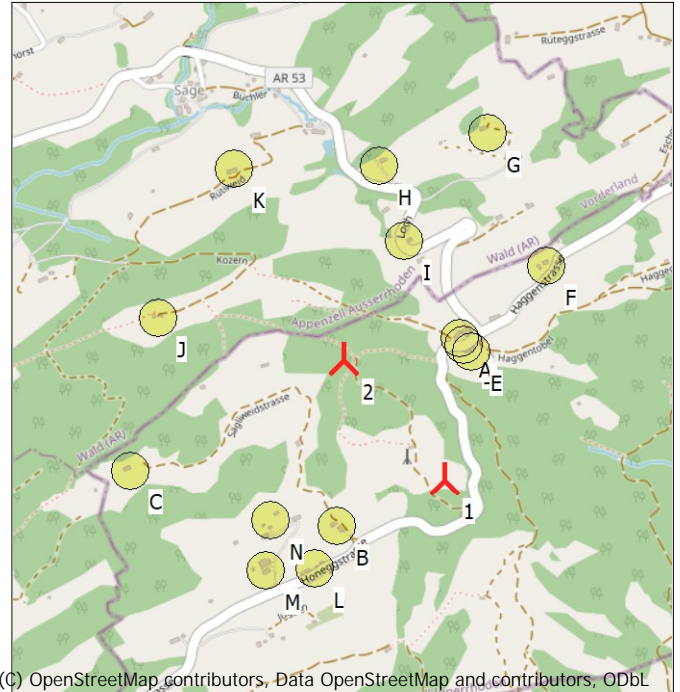
Nr.	Name	O	N	Z	Breite	Höhe	Höhe ü.Gr.	Neigung des Fensters	Ausrichtungsmodus	Augenhöhe (ZVI) ü.Gr.
					[m]	[m]	[m]	[°]		[m]
A	Haggen 2	2.757.378	1.252.620	1.049,5	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
B	Honegg 1	2.757.064	1.252.114	1.056,2	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
C	Sägliroet 1	2.756.513	1.252.250	1.026,9	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
D	Haggen 4	2.757.389	1.252.604	1.050,0	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
E	Haggen 1	2.757.409	1.252.586	1.047,8	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
F	Haggen 3	2.757.603	1.252.816	1.070,0	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
G	Erbskraut 1	2.757.438	1.253.163	1.044,0	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
H	Rütiweid 1	2.757.153	1.253.068	1.000,1	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
I	Rütiweid 2	2.757.222	1.252.874	1.005,0	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
J	Chozeren 1	2.756.576	1.252.652	1.072,5	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
K	Rütiweid 3	2.756.767	1.253.053	1.005,4	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
L	Honegg 2	2.757.008	1.251.998	1.046,6	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
M	Honegg 3	2.756.880	1.251.994	1.025,9	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0
N	Honegg 4	2.756.889	1.252.125	1.036,4	5,0	5,0	4,0	90,0	"Gewächshaus-Modus"	9,0

Berechnungsergebnisse

Schattenrezeptor

Nr.	Name	astron. max. mögl. Beschattungsdauer			met. wahrsch. Beschattungsdauer	
		Stunden/Jahr	Schattentage/Jahr	Max.Schattendauer/Tag	Stunden/Jahr	Stunden/Jahr
		[h/a]	[d/a]	[h/d]	[h/a]	[h/a]
A	Haggen 2	347:03	298	1:29	60:35	60:35
B	Honegg 1	0:00	0	0:00	0:00	0:00

(Fortsetzung nächste Seite)...



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Maßstab 1:20.000
▲ Neue WEA
● Schattenrezeptor

SHADOW - Hauptergebnis

Berechnung: 241_16_702_Schatten_Oberfeld

...(Fortsetzung von vorheriger Seite)

Nr.	Name	astron. max. mögl. Beschattungsdauer			met. wahrsch. Beschattungsdauer
		Stunden/Jahr [h/a]	Schattentage/Jahr [d/a]	Max.Schattendauer/Tag [h/d]	Stunden/Jahr [h/a]
C	Sägliroeit 1	26:51	54	0:39	6:14
D	Haggen 4	351:21	297	1:28	61:45
E	Haggen 1	339:11	296	1:27	60:12
F	Haggen 3	107:47	145	0:56	14:43
G	Erbskraut 1	65:34	92	0:48	7:01
H	Rütiweid 1	0:00	0	0:00	0:00
I	Rütiweid 2	156:52	174	1:18	21:28
J	Chozeren 1	65:06	82	1:02	14:13
K	Rütiweid 3	101:24	126	1:05	11:28
L	Honegg 2	0:00	0	0:00	0:00
M	Honegg 3	0:00	0	0:00	0:00
N	Honegg 4	85:24	90	1:09	19:04

Gesamtdauer Beschattung an Rezeptoren pro WEA

Nr.	Name	Maximal	Erwartet
		[h/a]	[h/a]
1	WEA 1	482:55	66:08
2	WEA 2	575:34	108:42

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.

Die Berechnung der Gesamtsumme für einen Rezeptor arbeitet mit einer gemittelten Richtungskorrektur für alle WEA, die an einem gegebenen Tag zur Beschattung beitragen. Wenn der Schattenwurf durch mehrere WEA an einem Tag nicht gleichzeitig stattfindet, kann die so ermittelte Summe geringfügig von der Summe der Beschattungszeiten abweichen, die für die individuellen WEA berechnet werden.

SHADOW - Kalender

Berechnung: 241_16_702_Schatten_Oberfeld Schattenrezeptor: A - Haggen 2
Annahmen für Schattenwurfberechnung

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor
N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni	
1	08:10 16:42	12:18 (1) 13:21 (1)	07:50 17:23	12:19 (1) 13:41 (1)	07:05 18:06	07:03 19:51	
2	08:10 16:43	12:18 (1) 13:22 (1)	07:48 17:24	12:18 (1) 13:41 (1)	07:03 18:08	07:01 19:52	9
3	08:10 16:44	12:18 (1) 13:22 (1)	07:47 17:26	12:19 (1) 13:41 (1)	07:01 18:09	06:59 19:54	26
4	08:10 16:45	12:18 (1) 13:23 (1)	07:46 17:27	12:20 (1) 13:42 (1)	06:59 18:11	06:57 19:55	35
5	08:10 16:46	12:18 (1) 13:24 (1)	07:44 17:29	12:19 (1) 13:41 (1)	06:57 18:12	06:55 19:56	41
6	08:10 16:47	12:19 (1) 13:25 (1)	07:43 17:31	12:20 (1) 13:42 (1)	06:55 18:14	06:53 19:58	47
7	08:09 16:48	12:18 (1) 13:25 (1)	07:42 17:32	12:20 (1) 13:41 (1)	06:53 18:15	06:51 19:59	51
8	08:09 16:49	12:18 (1) 13:27 (1)	07:40 17:34	12:21 (1) 13:41 (1)	06:51 18:16	06:49 20:01	56
9	08:09 16:50	12:18 (1) 13:27 (1)	07:39 17:35	12:21 (1) 13:41 (1)	06:49 18:18	06:47 20:02	59
10	08:08 16:51	12:18 (1) 13:28 (1)	07:37 17:37	12:22 (1) 13:41 (1)	06:47 18:19	06:45 20:03	63
11	08:08 16:53	12:18 (1) 13:29 (1)	07:36 17:38	12:22 (1) 13:40 (1)	06:45 18:21	06:44 20:05	65
12	08:08 16:54	12:18 (1) 13:30 (1)	07:34 17:40	12:22 (1) 13:39 (1)	06:43 18:22	06:42 20:06	68
13	08:07 16:55	12:18 (1) 13:30 (1)	07:33 17:42	12:23 (1) 13:40 (1)	06:41 18:24	06:40 20:08	71
14	08:07 16:56	12:19 (1) 13:32 (1)	07:31 17:43	12:24 (1) 13:39 (1)	06:39 18:25	06:38 20:09	73
15	08:06 16:58	12:18 (1) 13:32 (1)	07:29 17:45	12:24 (1) 13:38 (1)	06:37 18:27	06:36 20:10	76
16	08:05 16:59	12:18 (1) 13:33 (1)	07:28 17:46	12:26 (1) 13:37 (1)	06:35 18:28	06:34 20:12	78
17	08:05 17:01	12:18 (1) 13:33 (1)	07:26 17:48	12:27 (1) 13:36 (1)	06:33 18:30	06:32 20:13	79
18	08:04 17:02	12:18 (1) 13:34 (1)	07:24 17:49	12:28 (1) 13:35 (1)	06:31 18:31	06:30 20:15	81
19	08:03 17:03	12:18 (1) 13:35 (1)	07:23 17:51	12:29 (1) 13:33 (1)	06:29 18:32	06:28 20:16	82
20	08:02 17:05	12:18 (1) 13:36 (1)	07:21 17:52	12:31 (1) 13:33 (1)	06:27 18:34	06:27 20:17	83
21	08:02 17:06	12:18 (1) 13:37 (1)	07:19 17:54	12:33 (1) 13:31 (1)	06:25 18:35	06:25 20:19	85
22	08:01 17:08	12:18 (1) 13:37 (1)	07:17 17:55	12:35 (1) 13:28 (1)	06:23 18:37	06:23 20:20	86
23	08:00 17:09	12:18 (1) 13:38 (1)	07:16 17:57	12:37 (1) 13:26 (1)	06:21 18:38	06:21 20:22	87
24	07:59 17:11	12:18 (1) 13:38 (1)	07:14 17:59	12:41 (1) 13:23 (1)	06:19 18:40	06:19 20:23	88
25	07:58 17:12	12:18 (1) 13:39 (1)	07:12 18:00	12:45 (1) 13:19 (1)	06:17 18:41	06:18 20:24	88
26	07:57 17:14	12:18 (1) 13:39 (1)	07:10 18:02	12:53 (1) 13:13 (1)	06:15 18:42	06:16 20:26	89
27	07:56 17:15	12:18 (1) 13:39 (1)	07:08 18:03	06:13 18:44	06:14 20:27	06:14 21:05	88
28	07:55 17:17	12:18 (1) 13:40 (1)	07:07 18:05	06:11 18:45	06:12 20:29	06:12 21:07	88
29	07:53 17:18	12:18 (1) 13:40 (1)		07:09 19:47	06:11 20:30	06:11 21:08	89
30	07:52 17:20	12:18 (1) 13:40 (1)		07:07 19:48	06:09 20:31	06:09 21:09	89
31	07:51 17:21	12:18 (1) 13:41 (1)		07:05 19:49	07:05 19:49	05:31 21:10	88
Sonnenscheinstunden		277	287	368	408	468	476
astr.max.mögl.Beschattung		2296	1783		2105		2426
Red.Sonnenscheinwahrsch.		0,21	0,28		0,42		0,40
Reduktion Betriebsdauer		0,81	0,81		0,81		0,81
Reduktion Windrichtung		0,62	0,62		0,64		0,64
Gesamte Reduktion		0,10	0,14		0,22		0,22
Met.wahrsch.Beschattung		236	246		458		499
							360

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)	Schattende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: 241_16_702_Schatten_Oberfeld Schattenrezeptor: A - Haggen 2
Annahmen für Schattenwurfberechnung
Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor
N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Juli		August		September		Oktober		November			Dezember	
1	05:29	17:11 (2)	05:59	16:57 (2)	06:40	16:52 (2)	07:20	07:05	11:50 (1)	07:48	12:00 (1)		
	21:23	55 18:06 (2)	20:58	83 18:20 (2)	20:05	68 18:00 (2)	19:04	17:07	80 13:10 (1)	16:34	71 13:11 (1)		
2	05:30	17:12 (2)	06:00	16:56 (2)	06:41	16:54 (2)	07:21	07:06	11:50 (1)	07:49	12:01 (1)		
	21:23	55 18:07 (2)	20:56	84 18:20 (2)	20:03	65 17:59 (2)	19:02	17:05	80 13:10 (1)	16:34	70 13:11 (1)		
3	05:30	17:12 (2)	06:02	16:55 (2)	06:43	16:54 (2)	07:23	07:08	11:50 (1)	07:50	12:02 (1)		
	21:22	56 18:08 (2)	20:55	85 18:20 (2)	20:01	63 17:57 (2)	19:00	17:04	81 13:11 (1)	16:33	69 13:11 (1)		
4	05:31	17:11 (2)	06:03	16:54 (2)	06:44	16:55 (2)	07:24	07:09	11:50 (1)	07:51	12:02 (1)		
	21:22	57 18:08 (2)	20:53	85 18:19 (2)	19:59	60 17:55 (2)	18:58	17:02	81 13:11 (1)	16:33	69 13:11 (1)		
5	05:32	17:11 (2)	06:04	16:53 (2)	06:45	16:56 (2)	07:26	07:11	11:50 (1)	07:53	12:03 (1)		
	21:22	58 18:09 (2)	20:52	86 18:19 (2)	19:57	56 17:52 (2)	18:56	17:01	81 13:11 (1)	16:33	68 13:11 (1)		
6	05:32	17:11 (2)	06:06	16:54 (2)	06:47	16:59 (2)	07:27	07:12	11:49 (1)	07:54	12:05 (1)		
	21:21	58 18:09 (2)	20:50	86 18:20 (2)	19:55	51 17:50 (2)	18:54	16:59	82 13:11 (1)	16:32	66 13:11 (1)		
7	05:33	17:10 (2)	06:07	16:53 (2)	06:48	17:00 (2)	07:28	07:14	11:49 (1)	07:55	12:05 (1)		
	21:21	59 18:09 (2)	20:49	87 18:20 (2)	19:53	47 17:47 (2)	18:52	16:58	83 13:12 (1)	16:32	66 13:11 (1)		
8	05:34	17:10 (2)	06:08	16:52 (2)	06:49	17:02 (2)	07:30	07:15	11:50 (1)	07:56	12:06 (1)		
	21:21	60 18:10 (2)	20:47	87 18:19 (2)	19:51	42 17:44 (2)	18:50	16:57	82 13:12 (1)	16:32	65 13:11 (1)		
9	05:35	17:10 (2)	06:09	16:51 (2)	06:51	17:06 (2)	07:31	07:17	11:49 (1)	07:57	12:07 (1)		
	21:20	61 18:11 (2)	20:46	88 18:19 (2)	19:49	35 17:41 (2)	18:48	16:55	83 13:12 (1)	16:32	64 13:11 (1)		
10	05:35	17:10 (2)	06:11	16:51 (2)	06:52	17:10 (2)	07:32	07:18	11:50 (1)	07:58	12:07 (1)		
	21:19	61 18:11 (2)	20:44	89 18:20 (2)	19:47	26 17:36 (2)	18:46	16:54	82 13:12 (1)	16:32	64 13:11 (1)		
11	05:36	17:09 (2)	06:12	16:51 (2)	06:53	17:16 (2)	07:34	07:20	11:49 (1)	07:59	12:08 (1)		
	21:19	63 18:12 (2)	20:43	88 18:19 (2)	19:45	12 17:28 (2)	18:44	16:53	83 13:12 (1)	16:32	63 13:11 (1)		
12	05:37	17:08 (2)	06:13	16:50 (2)	06:54	17:35	07:35	07:21	11:50 (1)	08:00	12:09 (1)		
	21:18	64 18:12 (2)	20:41	89 18:19 (2)	19:43	18:42	18:42	16:51	82 13:12 (1)	16:32	63 13:12 (1)		
13	05:38	17:08 (2)	06:15	16:49 (2)	06:56	07:37	07:37	07:23	11:50 (1)	08:01	12:10 (1)		
	21:18	64 18:12 (2)	20:39	89 18:18 (2)	19:41	18:40	18:40	16:50	82 13:12 (1)	16:32	62 13:12 (1)		
14	05:39	17:07 (2)	06:16	16:50 (2)	06:57	07:38	07:38	07:24	11:50 (1)	08:02	12:11 (1)		
	21:17	66 18:13 (2)	20:38	88 18:18 (2)	19:39	18:38	18:38	16:49	82 13:12 (1)	16:32	61 13:12 (1)		
15	05:40	17:07 (2)	06:17	16:49 (2)	06:58	07:40	07:40	07:26	11:51 (1)	08:02	12:11 (1)		
	21:16	67 18:14 (2)	20:36	89 18:18 (2)	19:36	18:36	18:36	16:48	81 13:12 (1)	16:32	61 13:12 (1)		
16	05:41	17:06 (2)	06:19	16:49 (2)	07:00	07:41	13:21 (1)	07:27	11:51 (1)	08:03	12:11 (1)		
	21:15	68 18:14 (2)	20:34	88 18:17 (2)	19:34	18:35	26 13:47 (1)	16:47	81 13:12 (1)	16:32	61 13:12 (1)		
17	05:42	17:06 (2)	06:20	16:48 (2)	07:01	07:42	13:15 (1)	07:29	11:51 (1)	08:04	12:12 (1)		
	21:14	69 18:15 (2)	20:32	88 18:16 (2)	19:32	18:33	37 13:52 (1)	16:45	81 13:12 (1)	16:32	61 13:13 (1)		
18	05:43	17:05 (2)	06:21	16:49 (2)	07:02	07:44	13:11 (1)	07:30	11:52 (1)	08:05	12:12 (1)		
	21:14	70 18:15 (2)	20:31	87 18:16 (2)	19:30	18:31	44 13:55 (1)	16:44	80 13:12 (1)	16:33	60 13:12 (1)		
19	05:44	17:05 (2)	06:23	16:48 (2)	07:04	07:45	13:08 (1)	07:31	11:52 (1)	08:05	12:13 (1)		
	21:13	70 18:15 (2)	20:29	87 18:15 (2)	19:28	18:29	50 13:58 (1)	16:43	80 13:12 (1)	16:33	60 13:13 (1)		
20	05:45	17:04 (2)	06:24	16:48 (2)	07:05	07:47	13:05 (1)	07:33	11:53 (1)	08:06	12:14 (1)		
	21:12	72 18:16 (2)	20:27	86 18:14 (2)	19:26	18:27	55 14:00 (1)	16:42	79 13:12 (1)	16:33	60 13:14 (1)		
21	05:46	17:03 (2)	06:25	16:47 (2)	07:06	07:48	13:03 (1)	07:34	11:53 (1)	08:07	12:14 (1)		
	21:11	73 18:16 (2)	20:25	86 18:13 (2)	19:24	18:25	59 14:02 (1)	16:41	79 13:12 (1)	16:34	60 13:14 (1)		
22	05:47	17:03 (2)	06:27	16:48 (2)	07:08	07:50	13:00 (1)	07:36	11:54 (1)	08:07	12:15 (1)		
	21:10	74 18:17 (2)	20:23	85 18:13 (2)	19:22	18:24	63 14:03 (1)	16:41	78 13:12 (1)	16:34	60 13:15 (1)		
23	05:48	17:02 (2)	06:28	16:48 (2)	07:09	07:51	12:59 (1)	07:37	11:54 (1)	08:08	12:15 (1)		
	21:09	75 18:17 (2)	20:22	84 18:12 (2)	19:20	18:22	65 14:04 (1)	16:40	77 13:11 (1)	16:35	60 13:15 (1)		
24	05:50	17:01 (2)	06:29	16:48 (2)	07:10	07:53	12:58 (1)	07:39	11:56 (1)	08:08	12:15 (1)		
	21:07	76 18:17 (2)	20:20	83 18:11 (2)	19:18	18:20	68 14:06 (1)	16:39	76 13:12 (1)	16:35	60 13:15 (1)		
25	05:51	17:01 (2)	06:31	16:48 (2)	07:12	06:54	11:56 (1)	07:40	11:56 (1)	08:08	12:16 (1)		
	21:06	77 18:18 (2)	20:18	82 18:10 (2)	19:16	17:18	70 13:06 (1)	16:38	75 13:11 (1)	16:36	60 13:16 (1)		
26	05:52	17:01 (2)	06:32	16:49 (2)	07:13	06:56	11:55 (1)	07:41	11:57 (1)	08:09	12:16 (1)		
	21:05	78 18:19 (2)	20:16	80 18:09 (2)	19:14	17:17	72 13:07 (1)	16:37	75 13:12 (1)	16:37	61 13:17 (1)		
27	05:53	17:00 (2)	06:33	16:49 (2)	07:15	06:57	11:54 (1)	07:43	11:57 (1)	08:09	12:16 (1)		
	21:04	79 18:19 (2)	20:14	79 18:08 (2)	19:12	17:15	73 13:07 (1)	16:37	74 13:11 (1)	16:37	61 13:17 (1)		
28	05:54	16:59 (2)	06:35	16:49 (2)	07:16	06:59	11:53 (1)	07:44	11:58 (1)	08:09	12:16 (1)		
	21:03	80 18:19 (2)	20:12	77 18:06 (2)	19:10	17:13	75 13:08 (1)	16:36	73 13:11 (1)	16:38	61 13:17 (1)		
29	05:56	16:58 (2)	06:36	16:50 (2)	07:17	07:00	11:52 (1)	07:45	11:59 (1)	08:10	12:18 (1)		
	21:01	81 18:19 (2)	20:10	76 18:06 (2)	19:08	17:12	76 13:08 (1)	16:35	72 13:11 (1)	16:39	61 13:19 (1)		
30	05:57	16:57 (2)	06:37	16:51 (2)	07:19	07:02	11:52 (1)	07:47	11:59 (1)	08:10	12:18 (1)		
	21:00	82 18:19 (2)	20:08	73 18:04 (2)	19:06	17:10	77 13:09 (1)	16:35	72 13:11 (1)	16:40	62 13:20 (1)		
31	05:58	16:56 (2)	06:39	16:51 (2)	07:20	07:03	11:51 (1)	07:48	11:59 (1)	08:10	12:18 (1)		
	20:59	83 18:19 (2)	20:06	71 18:02 (2)	19:04	17:08	79 13:10 (1)	16:34	73 13:11 (1)	16:40	62 13:20 (1)		
Sonnenscheinstunden	481		442		378		338		281		265		
astr.max.mögl.Beschattung	2111		2615		525		989		2377		1952		
Red.Sonnenscheinwahrsch.	0,47		0,46		0,40		0,30		0,21		0,19		
Reduktion Betriebsdauer	0,81		0,81		0,81		0,81		0,81		0,81		
Reduktion Windrichtung	0,64		0,64		0,64		0,62		0,62		0,62		
Gesamte Reduktion	0,24		0,24		0,21		0,15		0,11		0,09		
Met.wahrsch.Beschattung	513		631		110		146		253		182		

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

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

Berechnung: 241_16_702_Schatten_Oberfeld
 Annahmen für Schattenwurfberechnung

Schattenrezeptor: B - Honegg 1

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
 1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
 395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
 Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:10 16:42	07:50 17:23	07:05 18:06	07:03 19:51	06:07 20:33	05:30 21:11	05:29 21:23	05:59 20:58	06:40 20:05	07:20 19:04	07:05 17:07	07:48 16:34
2	08:10 16:43	07:48 17:24	07:03 18:08	07:01 19:52	06:06 20:34	05:30 21:11	05:30 21:23	06:00 20:56	06:41 20:03	07:21 19:02	07:06 17:05	07:49 16:34
3	08:10 16:44	07:47 17:26	07:01 18:09	06:59 19:54	06:04 20:35	05:29 21:12	05:30 21:22	06:02 20:55	06:43 20:01	07:23 19:00	07:08 17:04	07:50 16:33
4	08:10 16:45	07:46 17:27	06:59 18:11	06:57 19:55	06:03 20:37	05:28 21:13	05:31 21:22	06:03 20:53	06:44 19:59	07:24 18:58	07:09 17:02	07:51 16:33
5	08:10 16:46	07:44 17:29	06:57 18:12	06:55 19:56	06:01 20:38	05:28 21:14	05:32 21:22	06:04 20:52	06:45 19:57	07:26 18:56	07:11 17:01	07:53 16:33
6	08:10 16:47	07:43 17:31	06:55 18:14	06:53 19:58	06:00 20:40	05:27 21:15	05:32 21:21	06:06 20:50	06:47 19:55	07:27 18:54	07:12 16:59	07:54 16:32
7	08:09 16:48	07:42 17:32	06:53 18:15	06:51 19:59	05:58 20:41	05:27 21:16	05:33 21:21	06:07 20:49	06:48 19:53	07:28 18:52	07:14 16:58	07:55 16:32
8	08:09 16:49	07:40 17:34	06:51 18:17	06:49 20:01	05:57 20:42	05:27 21:16	05:34 21:21	06:08 20:47	06:49 19:51	07:30 18:50	07:15 16:57	07:56 16:32
9	08:09 16:50	07:39 17:35	06:49 18:18	06:47 20:02	05:55 20:44	05:26 21:17	05:35 21:20	06:09 20:46	06:51 19:49	07:31 18:48	07:17 16:55	07:57 16:32
10	08:08 16:51	07:37 17:37	06:47 18:19	06:46 20:03	05:54 20:45	05:26 21:18	05:35 21:19	06:11 20:44	06:52 19:47	07:32 18:46	07:18 16:54	07:58 16:32
11	08:08 16:53	07:36 17:38	06:45 18:21	06:44 20:05	05:52 20:46	05:26 21:18	05:36 21:19	06:12 20:43	06:53 19:45	07:34 18:44	07:20 16:53	07:59 16:32
12	08:08 16:54	07:34 17:40	06:43 18:22	06:42 20:06	05:51 20:48	05:25 21:19	05:37 21:18	06:13 20:41	06:55 19:43	07:35 18:42	07:21 16:51	08:00 16:32
13	08:07 16:55	07:33 17:42	06:41 18:24	06:40 20:08	05:50 20:49	05:25 21:20	05:38 21:18	06:15 20:39	06:56 19:41	07:37 18:40	07:23 16:50	08:01 16:32
14	08:07 16:56	07:31 17:43	06:39 18:25	06:38 20:09	05:48 20:50	05:25 21:20	05:39 21:17	06:16 20:38	06:57 19:39	07:38 18:38	07:24 16:49	08:02 16:32
15	08:06 16:58	07:29 17:45	06:37 18:27	06:36 20:10	05:47 20:51	05:25 21:21	05:40 21:16	06:17 20:36	06:58 19:36	07:40 18:36	07:26 16:48	08:02 16:32
16	08:05 16:59	07:28 17:46	06:35 18:28	06:34 20:12	05:46 20:53	05:25 21:21	05:41 21:15	06:19 20:34	07:00 19:34	07:41 18:35	07:27 16:47	08:03 16:32
17	08:05 17:01	07:26 17:48	06:33 18:30	06:32 20:13	05:45 20:54	05:25 21:21	05:42 21:14	06:20 20:32	07:01 19:32	07:42 18:33	07:29 16:46	08:04 16:32
18	08:04 17:02	07:24 17:49	06:31 18:31	06:30 20:15	05:43 20:55	05:25 21:22	05:43 21:14	06:21 20:31	07:02 19:30	07:44 18:31	07:30 16:44	08:05 16:33
19	08:03 17:03	07:23 17:51	06:29 18:32	06:28 20:16	05:42 20:56	05:25 21:22	05:44 21:13	06:23 20:29	07:04 19:28	07:45 18:29	07:31 16:43	08:05 16:33
20	08:02 17:05	07:21 17:52	06:27 18:34	06:27 20:17	05:41 20:58	05:25 21:23	05:45 21:12	06:24 20:27	07:05 19:26	07:47 18:27	07:33 16:42	08:06 16:33
21	08:02 17:06	07:19 17:54	06:25 18:35	06:25 20:19	05:40 20:59	05:25 21:23	05:46 21:11	06:25 20:25	07:06 19:24	07:48 18:25	07:34 16:41	08:07 16:34
22	08:01 17:08	07:17 17:56	06:23 18:37	06:23 20:20	05:39 21:00	05:25 21:23	05:47 21:10	06:27 20:23	07:08 19:22	07:50 18:24	07:36 16:41	08:07 16:34
23	08:00 17:09	07:16 17:57	06:21 18:38	06:21 20:22	05:38 21:01	05:26 21:23	05:48 21:09	06:28 20:22	07:09 19:20	07:51 18:22	07:37 16:40	08:08 16:35
24	07:59 17:11	07:14 17:59	06:19 18:40	06:19 20:23	05:37 21:02	05:26 21:23	05:50 21:07	06:29 20:20	07:11 19:18	07:53 18:20	07:39 16:39	08:08 16:35
25	07:58 17:12	07:12 18:00	06:17 18:41	06:17 20:24	05:36 21:03	05:26 21:23	05:51 21:06	06:31 20:18	07:12 19:16	07:54 17:18	07:40 16:38	08:08 16:36
26	07:57 17:14	07:10 18:02	06:15 18:42	06:16 20:26	05:35 21:04	05:27 21:23	05:52 21:05	06:32 20:16	07:13 19:14	07:56 17:17	07:41 16:37	08:09 16:37
27	07:56 17:15	07:08 18:03	06:13 18:44	06:14 20:27	05:34 21:05	05:27 21:23	05:53 21:04	06:33 20:14	07:15 19:12	07:57 17:15	07:43 16:37	08:09 16:37
28	07:55 17:17	07:07 18:05	06:11 18:45	06:12 20:29	05:33 21:07	05:27 21:23	05:54 21:03	06:35 20:12	07:16 19:10	07:59 17:13	07:44 16:36	08:09 16:38
29	07:53 17:18	07:09 19:47	06:11 20:30	06:11 21:08	05:32 21:08	05:28 21:23	05:56 21:02	06:36 20:10	07:17 19:08	07:00 17:12	07:45 16:35	08:10 16:39
30	07:52 17:20	07:07 19:48	06:09 20:31	06:09 21:09	05:32 21:09	05:28 21:23	05:57 21:00	06:37 20:08	07:19 19:06	07:02 17:10	07:47 16:35	08:10 16:40
31	07:51 17:21	07:05 19:49	07:05 21:10	07:05 21:10	05:31 21:10	05:28 20:59	05:58 20:07	06:39 20:07	07:03 17:09	07:03 17:09	07:03 16:40	08:10 16:40
Sonnenscheinstunden	277	287	368	408	468	476	481	442	378	338	281	265
astr. max. mögl. Beschattung												
Red. Sonnenscheinwahrsch.												
Reduktion Betriebsdauer												
Reduktion Windrichtung												
Gesamte Reduktion												
Met. wahrsch. 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	Schattenende (WEA mit letztem Schatten)

Projekt:

241_11_700_Appenzell_2022

Lizenzierter Anwender:

JH Wind GmbH
Gruberhof 8
DE-79110 Freiburg
+49 0761 15612852
Johannes Hagemann / jh-wind@email.de
Berechnet:
26.01.2023 22:43/3.6.355

SHADOW - Kalender

Berechnung: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: C - Sägliroeit 1
Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

Table with 12 columns for months (Januar to Dezember) and rows for hourly solar data (08:10 to 17:21) and summary statistics (Sonnenscheinstunden, astr. max.mögl. Beschattung, Red. Sonnenscheinwahrsch., etc.).

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: 241_16_702_Schatten_Oberfeld Schattenrezeptor: D - Haggen 4
 Annahmen für Schattenwurfberechnung
 Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
 Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
 1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
395	436	229	207	251	637	1.082	365	782	1.585	809	350	7.128

Startwindgeschwindigkeit 2,5m/s

	Januar		Februar		März		April		Mai		Juni		
1	08:10		12:27 (1)	07:50	12:25 (1)	07:05	12:59 (1)	07:03	06:07	16:51 (2)	05:30	17:05 (2)	
	16:42	58	13:25 (1)	17:23	13:49 (1)	18:06	13:20 (1)	19:51	20:33	18:18 (2)	21:11	18:16 (2)	71
2	08:10		12:27 (1)	07:48	12:24 (1)	07:03		07:01	06:06	16:52 (2)	05:30	17:06 (2)	
	16:43	59	13:26 (1)	17:24	13:48 (1)	18:08		19:52	20:34	18:19 (2)	21:11	18:17 (2)	71
3	08:10		12:26 (1)	07:47	12:24 (1)	07:01		06:59	06:04	16:51 (2)	05:29	17:06 (2)	
	16:44	60	13:26 (1)	17:26	13:49 (1)	18:09		19:54	20:35	18:19 (2)	21:12	18:16 (2)	70
4	08:10		12:27 (1)	07:46	12:25 (1)	06:59		06:57	06:03	16:52 (2)	05:28	17:08 (2)	
	16:45	60	13:27 (1)	17:27	13:50 (1)	18:11		19:55	20:37	18:19 (2)	21:13	18:17 (2)	69
5	08:10		12:27 (1)	07:44	12:25 (1)	06:57		06:55	06:01	16:51 (2)	05:28	17:08 (2)	
	16:46	62	13:29 (1)	17:29	13:49 (1)	18:12		19:56	20:38	18:19 (2)	21:14	18:16 (2)	68
6	08:10		12:27 (1)	07:43	12:25 (1)	06:55		06:53	06:00	16:52 (2)	05:27	17:09 (2)	
	16:47	63	13:30 (1)	17:31	13:50 (1)	18:14		19:58	20:40	18:19 (2)	21:15	18:16 (2)	67
7	08:09		12:26 (1)	07:42	12:25 (1)	06:53		06:51	05:58	16:51 (2)	05:27	17:09 (2)	
	16:48	64	13:30 (1)	17:32	13:49 (1)	18:15		19:59	20:41	18:19 (2)	21:16	18:16 (2)	67
8	08:09		12:27 (1)	07:40	12:26 (1)	06:51		06:49	05:57	16:52 (2)	05:27	17:09 (2)	
	16:49	64	13:31 (1)	17:34	13:50 (1)	18:16		20:01	20:42	18:19 (2)	21:16	18:16 (2)	67
9	08:09		12:26 (1)	07:39	12:25 (1)	06:49		06:47	05:55	16:53 (2)	05:26	17:10 (2)	
	16:50	66	13:32 (1)	17:35	13:49 (1)	18:18		20:02	20:44	18:20 (2)	21:17	18:16 (2)	66
10	08:08		12:26 (1)	07:37	12:26 (1)	06:47		06:45	05:54	16:52 (2)	05:26	17:11 (2)	
	16:51	67	13:33 (1)	17:37	13:50 (1)	18:19		20:03	20:45	18:19 (2)	21:18	18:16 (2)	65
11	08:08		12:26 (1)	07:36	12:26 (1)	06:45		06:44	05:52	16:53 (2)	05:26	17:11 (2)	
	16:53	68	13:34 (1)	17:38	13:49 (1)	18:21		20:05	20:46	18:19 (2)	21:18	18:15 (2)	64
12	08:08		12:26 (1)	07:34	12:26 (1)	06:43		06:42	05:51	16:54 (2)	05:25	17:11 (2)	
	16:54	69	13:35 (1)	17:40	13:48 (1)	18:22		20:06	20:48	18:19 (2)	21:19	18:16 (2)	65
13	08:07		12:26 (1)	07:33	12:27 (1)	06:41		06:40	05:50	16:53 (2)	05:25	17:12 (2)	
	16:55	70	13:36 (1)	17:42	13:49 (1)	18:24		20:08	20:49	18:18 (2)	21:20	18:16 (2)	64
14	08:07		12:26 (1)	07:31	12:27 (1)	06:39		06:38	05:48	16:54 (2)	05:25	17:12 (2)	
	16:56	71	13:37 (1)	17:43	13:48 (1)	18:25		20:09	20:50	18:19 (2)	21:20	18:16 (2)	64
15	08:06		12:26 (1)	07:29	12:28 (1)	06:37		06:36	05:47	16:55 (2)	05:25	17:13 (2)	
	16:58	72	13:38 (1)	17:45	13:47 (1)	18:27		20:10	20:51	18:19 (2)	21:21	18:16 (2)	63
16	08:05		12:26 (1)	07:28	12:29 (1)	06:35		06:34	05:46	16:55 (2)	05:25	17:13 (2)	
	16:59	72	13:38 (1)	17:46	13:47 (1)	18:28		20:12	20:53	18:19 (2)	21:21	18:16 (2)	63
17	08:05		12:25 (1)	07:26	12:29 (1)	06:33		06:32	05:44	16:56 (2)	05:25	17:14 (2)	
	17:01	74	13:39 (1)	17:48	13:46 (1)	18:30		20:13	20:54	18:19 (2)	21:22	18:16 (2)	62
18	08:04		12:25 (1)	07:24	12:30 (1)	06:31		06:30	05:43	16:57 (2)	05:25	17:14 (2)	
	17:02	75	13:40 (1)	17:49	13:45 (1)	18:31		20:15	20:55	18:19 (2)	21:22	18:16 (2)	62
19	08:03		12:26 (1)	07:23	12:31 (1)	06:29		06:28	05:42	16:57 (2)	05:25	17:14 (2)	
	17:03	75	13:41 (1)	17:51	13:44 (1)	18:32		20:16	20:56	18:19 (2)	21:22	18:16 (2)	62
20	08:02		12:25 (1)	07:21	12:33 (1)	06:27		06:27	05:41	16:58 (2)	05:25	17:14 (2)	
	17:05	77	13:42 (1)	17:52	13:44 (1)	18:34		20:17	20:58	18:18 (2)	21:23	18:16 (2)	62
21	08:02		12:25 (1)	07:19	12:34 (1)	06:25		06:25	05:40	16:58 (2)	05:25	17:15 (2)	
	17:06	78	13:43 (1)	17:54	13:43 (1)	18:35		20:19	20:59	18:18 (2)	21:23	18:17 (2)	62
22	08:01		12:25 (1)	07:17	12:35 (1)	06:23		06:23	05:39	16:59 (2)	05:25	17:15 (2)	
	17:08	78	13:43 (1)	17:55	13:41 (1)	18:37		20:20	21:00	18:18 (2)	21:23	18:17 (2)	62
23	08:00		12:25 (1)	07:16	12:36 (1)	06:21		06:21	05:38	17:00 (2)	05:26	17:15 (2)	
	17:09	79	13:44 (1)	17:57	13:40 (1)	18:38		20:22	21:01	18:18 (2)	21:23	18:17 (2)	62
24	07:59		12:25 (1)	07:14	12:38 (1)	06:19		06:19	05:37	17:00 (2)	05:26	17:15 (2)	
	17:11	80	13:45 (1)	17:59	13:38 (1)	18:40		20:23	21:02	18:18 (2)	21:23	18:17 (2)	62
25	07:58		12:25 (1)	07:12	12:40 (1)	06:17		06:18	05:36	17:01 (2)	05:26	17:16 (2)	
	17:12	81	13:46 (1)	18:00	13:35 (1)	18:41		20:24	21:03	18:17 (2)	21:23	18:18 (2)	62
26	07:57		12:24 (1)	07:10	12:44 (1)	06:15		06:16	05:35	17:01 (2)	05:27	17:15 (2)	
	17:14	81	13:45 (1)	18:02	13:34 (1)	18:42		20:26	21:04	18:17 (2)	21:23	18:18 (2)	63
27	07:56		12:24 (1)	07:08	12:47 (1)	06:13		06:14	05:34	17:01 (2)	05:27	17:15 (2)	
	17:15	82	13:46 (1)	18:03	13:31 (1)	18:44		20:27	21:05	18:17 (2)	21:23	18:18 (2)	63
28	07:55		12:24 (1)	07:07	12:52 (1)	06:11		06:12	05:33	17:03 (2)	05:27	17:16 (2)	
	17:17	83	13:47 (1)	18:05	13:27 (1)	18:45		20:29	21:07	18:17 (2)	21:23	18:19 (2)	63
29	07:53		12:25 (1)			07:09		06:11	05:32	17:03 (2)	05:28	17:15 (2)	
	17:18	83	13:48 (1)			19:47		20:30	21:08	18:17 (2)	21:23	18:19 (2)	64
30	07:52		12:24 (1)			07:07		06:09	05:32	17:04 (2)	05:28	17:16 (2)	
	17:20	83	13:47 (1)			19:48		20:31	21:09	18:16 (2)	21:23	18:20 (2)	64
31	07:51		12:24 (1)			07:05			05:31	17:05 (2)			
	17:21	84	13:48 (1)			19:49			21:10	18:17 (2)			
Sonnenscheinstunden	277		287		368		408		468		476		1939
astr.max.mögl.Beschattung	2238		2067		21		1724		2544				1939
Red.Sonnenscheinwahrsch.	0,21		0,28		0,36		0,42		0,40				0,42
Reduktion Betriebsdauer	0,81		0,81		0,81		0,81		0,81				0,81
Reduktion Windrichtung	0,62		0,62		0,62		0,65		0,65				0,65
Gesamte Reduktion	0,10		0,14		0,18		0,22		0,21				0,22
Met.wahrsch.Beschattung	230		284		4		380		530				429

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: 241_16_702_Schatten_Oberfeld Schattenrezeptor: D - Haggen 4
Annahmen für Schattenwurfberechnung Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor
N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Juli		August		September		Oktober		November			Dezember				
1	05:29	17:15 (2)	05:59	17:04 (2)	06:40	17:08 (2)	07:20		07:05	11:55 (1)	07:48		12:08 (1)			
	21:23	65	18:20 (2)	20:58	86	18:03 (2)	19:04		17:07	83	13:18 (1)	16:34	68	13:16 (1)		
2	05:30	17:15 (2)	06:00	17:03 (2)	06:41	17:11 (2)	07:21		07:06		11:55 (1)	07:49		12:09 (1)		
	21:23	65	18:20 (2)	20:56	87	18:30 (2)	20:03	50	17:05	84	13:19 (1)	16:34	67	13:16 (1)		
3	05:30	17:16 (2)	06:02	17:03 (2)	06:43	17:12 (2)	07:23		07:08		11:55 (1)	07:50		12:10 (1)		
	21:22	65	18:21 (2)	20:55	86	18:29 (2)	20:01	46	17:04	84	13:19 (1)	16:33	66	13:16 (1)		
4	05:31	17:15 (2)	06:03	17:02 (2)	06:44	17:14 (2)	07:24		07:09		11:55 (1)	07:51		12:11 (1)		
	21:22	66	18:21 (2)	20:53	87	18:29 (2)	19:59	41	17:02	84	13:19 (1)	16:33	65	13:16 (1)		
5	05:32	17:15 (2)	06:04	17:01 (2)	06:45	17:17 (2)	07:26		07:11		11:55 (1)	07:53		12:11 (1)		
	21:22	67	18:22 (2)	20:52	88	18:29 (2)	19:57	34	17:01	84	13:19 (1)	16:33	64	13:15 (1)		
6	05:32	17:15 (2)	06:06	17:02 (2)	06:47	17:22 (2)	07:27		07:12		11:54 (1)	07:54		12:13 (1)		
	21:21	67	18:22 (2)	20:50	87	18:29 (2)	19:55	25	16:59	85	13:19 (1)	16:32	63	13:16 (1)		
7	05:33	17:14 (2)	06:07	17:01 (2)	06:48	17:29 (2)	07:28		07:14		11:55 (1)	07:55		12:14 (1)		
	21:21	68	18:22 (2)	20:49	88	18:29 (2)	19:53	10	16:58	84	13:19 (1)	16:32	62	13:16 (1)		
8	05:34	17:14 (2)	06:08	17:01 (2)	06:49	17:30 (2)	07:30		07:15		11:55 (1)	07:56		12:15 (1)		
	21:21	69	18:23 (2)	20:47	87	18:28 (2)	19:51		16:57	85	13:20 (1)	16:32	61	13:16 (1)		
9	05:35	17:14 (2)	06:09	17:00 (2)	06:51	17:31 (2)	07:31		07:17		11:55 (1)	07:57		12:15 (1)		
	21:20	69	18:23 (2)	20:46	88	18:28 (2)	19:49		16:55	84	13:19 (1)	16:32	61	13:16 (1)		
10	05:35	17:14 (2)	06:11	17:01 (2)	06:52	17:32 (2)	07:32		07:18		11:55 (1)	07:58		12:16 (1)		
	21:19	70	18:24 (2)	20:44	87	18:28 (2)	19:47		16:54	84	13:19 (1)	16:32	60	13:16 (1)		
11	05:36	17:14 (2)	06:12	17:00 (2)	06:53	17:34 (2)	07:34		07:20		11:55 (1)	07:59		12:17 (1)		
	21:19	71	18:25 (2)	20:43	88	18:28 (2)	19:45		16:53	84	13:19 (1)	16:32	59	13:16 (1)		
12	05:37	17:12 (2)	06:13	17:00 (2)	06:54	17:35 (2)	07:35		07:21		11:56 (1)	08:00		12:18 (1)		
	21:18	72	18:24 (2)	20:41	87	18:27 (2)	19:43	3	13:45 (1)	16:51	83	13:19 (1)	16:32	58	13:16 (1)	
13	05:38	17:12 (2)	06:15	16:59 (2)	06:56	17:37 (2)	07:37		07:37		11:56 (1)	08:01		12:19 (1)		
	21:18	73	18:25 (2)	20:39	87	18:26 (2)	19:41	28	13:57 (1)	16:50	83	13:19 (1)	16:32	57	13:16 (1)	
14	05:39	17:12 (2)	06:16	17:00 (2)	06:57	17:38 (2)	07:38		07:38		11:56 (1)	08:02		12:20 (1)		
	21:17	73	18:25 (2)	20:38	86	18:26 (2)	19:39	39	14:01 (1)	16:49	83	13:19 (1)	16:32	56	13:16 (1)	
15	05:40	17:12 (2)	06:17	16:59 (2)	06:58	17:40 (2)	07:40		07:40		11:57 (1)	08:02		12:20 (1)		
	21:16	74	18:26 (2)	20:36	87	18:26 (2)	19:36	46	14:04 (1)	16:48	82	13:19 (1)	16:32	56	13:16 (1)	
16	05:41	17:11 (2)	06:19	16:59 (2)	07:00	17:41 (2)	07:41		07:41		11:57 (1)	08:03		12:21 (1)		
	21:15	75	18:26 (2)	20:34	86	18:25 (2)	19:34	52	14:06 (1)	16:47	81	13:18 (1)	16:32	55	13:16 (1)	
17	05:42	17:11 (2)	06:20	16:59 (2)	07:01	17:42 (2)	07:42		07:42		11:58 (1)	08:04		12:22 (1)		
	21:14	75	18:26 (2)	20:32	85	18:24 (2)	19:32	57	14:09 (1)	16:45	81	13:19 (1)	16:32	55	13:17 (1)	
18	05:43	17:10 (2)	06:21	17:00 (2)	07:02	17:44 (2)	07:44		07:44		11:59 (1)	08:05		12:22 (1)		
	21:14	77	18:27 (2)	20:31	84	18:24 (2)	19:30	61	14:10 (1)	16:44	80	13:19 (1)	16:33	54	13:16 (1)	
19	05:44	17:10 (2)	06:23	17:00 (2)	07:04	17:45 (2)	07:45		07:45		11:59 (1)	08:05		12:23 (1)		
	21:13	77	18:27 (2)	20:29	83	18:23 (2)	19:28	65	14:12 (1)	16:43	79	13:18 (1)	16:33	54	13:17 (1)	
20	05:45	17:09 (2)	06:24	16:59 (2)	07:05	17:47 (2)	07:47		07:47		12:00 (1)	08:06		12:24 (1)		
	21:12	78	18:27 (2)	20:27	82	18:21 (2)	19:26	67	14:12 (1)	16:42	78	13:18 (1)	16:33	54	13:18 (1)	
21	05:46	17:09 (2)	06:25	16:59 (2)	07:06	17:48 (2)	07:48		07:48		12:00 (1)	08:07		12:24 (1)		
	21:11	79	18:28 (2)	20:25	81	18:20 (2)	19:24	70	14:14 (1)	16:41	78	13:18 (1)	16:34	54	13:18 (1)	
22	05:47	17:08 (2)	06:27	17:00 (2)	07:08	17:50 (2)	07:50		07:50		12:01 (1)	08:07		12:25 (1)		
	21:10	80	18:28 (2)	20:23	80	18:20 (2)	19:22	72	14:14 (1)	16:41	77	13:18 (1)	16:34	53	13:18 (1)	
23	05:48	17:08 (2)	06:28	17:01 (2)	07:09	17:51 (2)	07:51		07:51		12:02 (1)	08:08		12:25 (1)		
	21:09	80	18:28 (2)	20:22	77	18:18 (2)	19:20	74	14:15 (1)	16:40	75	13:17 (1)	16:35	54	13:19 (1)	
24	05:50	17:07 (2)	06:29	17:01 (2)	07:10	17:53 (2)	07:53		07:53		12:03 (1)	08:08		12:25 (1)		
	21:07	81	18:28 (2)	20:20	76	18:17 (2)	19:18	76	14:16 (1)	16:39	75	13:18 (1)	16:35	54	13:19 (1)	
25	05:51	17:07 (2)	06:31	17:01 (2)	07:12	17:55 (2)	07:55		07:55		12:04 (1)	08:08		12:26 (1)		
	21:06	82	18:29 (2)	20:18	74	18:15 (2)	19:16	77	13:16 (1)	16:38	74	13:17 (1)	16:36	54	13:20 (1)	
26	05:52	17:07 (2)	06:32	17:03 (2)	07:13	17:57 (2)	07:57		07:57		12:05 (1)	08:09		12:26 (1)		
	21:05	82	18:29 (2)	20:16	72	18:15 (2)	19:14	79	13:17 (1)	16:37	72	13:17 (1)	16:37	54	13:20 (1)	
27	05:53	17:06 (2)	06:33	17:03 (2)	07:15	17:59 (2)	07:59		07:59		12:05 (1)	08:09		12:26 (1)		
	21:04	83	18:29 (2)	20:14	70	18:13 (2)	19:12	80	13:17 (1)	16:37	72	13:17 (1)	16:37	55	13:21 (1)	
28	05:54	17:06 (2)	06:35	17:04 (2)	07:16	18:01 (2)	07:16		07:16		12:05 (1)	08:09		12:26 (1)		
	21:03	83	18:29 (2)	20:12	67	18:11 (2)	19:10	81	13:18 (1)	16:36	71	13:16 (1)	16:38	55	13:21 (1)	
29	05:56	17:05 (2)	06:36	17:05 (2)	07:17	18:03 (2)	07:17		07:17		12:07 (1)	08:10		12:27 (1)		
	21:01	84	18:29 (2)	20:10	65	18:10 (2)	19:08	81	13:17 (1)	16:35	70	13:17 (1)	16:39	56	13:23 (1)	
30	05:57	17:04 (2)	06:37	17:06 (2)	07:19	18:05 (2)	07:19		07:19		12:07 (1)	08:10		12:27 (1)		
	21:00	85	18:29 (2)	20:08	62	18:08 (2)	19:06	82	13:18 (1)	16:35	69	13:16 (1)	16:40	57	13:24 (1)	
31	05:58	17:04 (2)	06:39	17:07 (2)		18:09 (2)			07:03					12:27 (1)		
	20:59	85	18:29 (2)	20:06	58	18:05 (2)			17:08	83	13:19 (1)			16:40	57	13:24 (1)
Sonnenscheinstunden	481		442		378		338		281		265					
astr.max.mögl.Beschattung		2320		2508		261		1273		2388						1798
Red.Sonnenscheinwahrsch.		0,47		0,46		0,40		0,30		0,21						0,19
Reduktion Betriebsdauer		0,81		0,81		0,81		0,81		0,81						0,81
Reduktion Windrichtung		0,65		0,65		0,65		0,62		0,62						0,62
Gesamte Reduktion		0,25		0,24		0,21		0,15		0,11						0,09
Met.wahrsch.Beschattung		571		613		55		188		254						167

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

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

Berechnung: 241_16_702_Schatten_Oberfeld Schattenrezeptor: E - Haggen 1
 Annahmen für Schattenwurfberechnung Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
 1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
 395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
 Startwindgeschwindigkeit 2,5m/s

		Januar		Februar		März		April		Mai		Juni				
1	08:10		12:48 (1)	07:50		12:37 (1)	07:05		12:52 (1)	07:03		06:07	17:05 (2)	05:30		17:14 (2)
	16:42	42	13:30 (1)	17:23	84	14:01 (1)	18:06	59	13:51 (1)	19:51		20:33	18:27 (2)	21:11	75	18:29 (2)
2	08:10		12:48 (1)	07:48		12:37 (1)	07:03		12:54 (1)	07:01		06:06	17:05 (2)	05:30		17:15 (2)
	16:43	43	13:31 (1)	17:24	83	14:00 (1)	18:08	55	13:49 (1)	19:52		20:34	18:28 (2)	21:11	75	18:30 (2)
3	08:10		12:47 (1)	07:47		12:37 (1)	07:01		12:57 (1)	06:59		06:04	17:05 (2)	05:29		17:15 (2)
	16:44	44	13:31 (1)	17:26	84	14:01 (1)	18:09	49	13:46 (1)	19:54		20:35	18:28 (2)	21:12	74	18:29 (2)
4	08:10		12:46 (1)	07:46		12:37 (1)	06:59		13:01 (1)	06:57		06:03	17:05 (2)	05:28		17:16 (2)
	16:45	47	13:33 (1)	17:27	85	14:02 (1)	18:11	42	13:43 (1)	19:55		20:37	18:29 (2)	21:13	74	18:30 (2)
5	08:10		12:46 (1)	07:44		12:37 (1)	06:57		13:07 (1)	06:55		06:01	17:04 (2)	05:28		17:16 (2)
	16:46	48	13:34 (1)	17:29	85	14:02 (1)	18:12	31	13:38 (1)	19:56		20:38	18:28 (2)	21:14	73	18:29 (2)
6	08:10		12:46 (1)	07:43		12:37 (1)	06:55		13:16 (1)	06:53		06:00	17:05 (2)	05:27		17:17 (2)
	16:47	49	13:35 (1)	17:31	86	14:03 (1)	18:14	15	13:31 (1)	19:58		20:40	18:29 (2)	21:15	72	18:29 (2)
7	08:09		12:45 (1)	07:42		12:37 (1)	06:53			06:51		05:58	17:04 (2)	05:27		17:16 (2)
	16:48	51	13:36 (1)	17:32	86	14:03 (1)	18:15			19:59		20:41	18:29 (2)	21:16	73	18:29 (2)
8	08:09		12:45 (1)	07:40		12:37 (1)	06:51			06:49		05:57	17:04 (2)	05:27		17:17 (2)
	16:49	53	13:38 (1)	17:34	86	14:03 (1)	18:16			20:01		20:42	18:29 (2)	21:16	72	18:29 (2)
9	08:09		12:44 (1)	07:39		12:37 (1)	06:49			06:47		05:55	17:05 (2)	05:26		17:18 (2)
	16:50	54	13:38 (1)	17:35	86	14:03 (1)	18:18			20:02		20:44	18:30 (2)	21:17	71	18:29 (2)
10	08:08		12:45 (1)	07:37		12:37 (1)	06:47			06:45	17:45 (2)	05:54	17:04 (2)	05:26		17:19 (2)
	16:51	55	13:40 (1)	17:37	87	14:04 (1)	18:19			20:03	8	20:45	18:29 (2)	21:18	71	18:30 (2)
11	08:08		12:44 (1)	07:36		12:37 (1)	06:45			06:44		05:52	17:05 (2)	05:26		17:18 (2)
	16:53	57	13:41 (1)	17:38	86	14:03 (1)	18:21			20:05	24	20:46	18:29 (2)	21:18	71	18:29 (2)
12	08:08		12:44 (1)	07:34		12:37 (1)	06:43			06:42		05:51	17:05 (2)	05:25		17:19 (2)
	16:54	58	13:42 (1)	17:40	86	14:03 (1)	18:22			20:06	33	20:48	18:30 (2)	21:19	70	18:29 (2)
13	08:07		12:43 (1)	07:33		12:37 (1)	06:41			06:40		05:50	17:05 (2)	05:25		17:19 (2)
	16:55	60	13:43 (1)	17:42	87	14:04 (1)	18:24			20:08	39	20:49	18:29 (2)	21:20	70	18:29 (2)
14	08:07		12:43 (1)	07:31		12:37 (1)	06:39			06:38		05:48	17:05 (2)	05:25		17:20 (2)
	16:56	62	13:45 (1)	17:43	86	14:03 (1)	18:25			20:09	45	20:50	18:29 (2)	21:20	70	18:30 (2)
15	08:06		12:43 (1)	07:29		12:37 (1)	06:37			06:36		05:47	17:06 (2)	05:25		17:20 (2)
	16:58	63	13:46 (1)	17:45	86	14:03 (1)	18:27			20:10	49	20:51	18:30 (2)	21:21	70	18:30 (2)
16	08:05		12:42 (1)	07:28		12:38 (1)	06:35			06:34		05:46	17:06 (2)	05:25		17:21 (2)
	16:59	65	13:47 (1)	17:46	85	14:03 (1)	18:28			20:12	53	20:53	18:30 (2)	21:21	69	18:30 (2)
17	08:05		12:41 (1)	07:26		12:38 (1)	06:33			06:32		05:44	17:07 (2)	05:25		17:21 (2)
	17:01	67	13:48 (1)	17:48	84	14:02 (1)	18:30			20:13	57	20:54	18:30 (2)	21:21	69	18:30 (2)
18	08:04		12:41 (1)	07:24		12:38 (1)	06:31			06:30		05:43	17:07 (2)	05:25		17:21 (2)
	17:02	68	13:49 (1)	17:49	84	14:02 (1)	18:31			20:15	59	20:55	18:30 (2)	21:22	69	18:30 (2)
19	08:03		12:41 (1)	07:23		12:39 (1)	06:29			06:28		05:42	17:07 (2)	05:25		17:21 (2)
	17:03	69	13:50 (1)	17:51	82	14:01 (1)	18:32			20:16	62	20:56	18:30 (2)	21:22	69	18:30 (2)
20	08:02		12:41 (1)	07:21		12:40 (1)	06:27			06:27		05:41	17:08 (2)	05:25		17:21 (2)
	17:05	70	13:51 (1)	17:52	81	14:01 (1)	18:34			20:17	65	20:58	18:30 (2)	21:23	69	18:30 (2)
21	08:02		12:41 (1)	07:19		12:41 (1)	06:25			06:25		05:40	17:08 (2)	05:25		17:23 (2)
	17:06	71	13:52 (1)	17:54	79	14:00 (1)	18:35			20:19	68	20:59	18:30 (2)	21:23	68	18:31 (2)
22	08:01		12:40 (1)	07:17		12:41 (1)	06:23			06:23		05:39	17:09 (2)	05:25		17:23 (2)
	17:08	73	13:53 (1)	17:55	79	14:00 (1)	18:37			20:20	70	21:00	18:30 (2)	21:23	68	18:31 (2)
23	08:00		12:40 (1)	07:16		12:42 (1)	06:21			06:21		05:38	17:09 (2)	05:26		17:22 (2)
	17:09	74	13:54 (1)	17:57	77	13:59 (1)	18:38			20:22	71	21:01	18:30 (2)	21:23	69	18:31 (2)
24	07:59		12:40 (1)	07:14		12:43 (1)	06:19			06:19		05:37	17:10 (2)	05:26		17:22 (2)
	17:11	75	13:55 (1)	17:59	74	13:57 (1)	18:40			20:23	74	21:02	18:30 (2)	21:23	69	18:31 (2)
25	07:58		12:39 (1)	07:12		12:44 (1)	06:17			06:18		05:36	17:10 (2)	05:26		17:23 (2)
	17:12	77	13:56 (1)	18:00	72	13:56 (1)	18:41			20:24	75	21:03	18:29 (2)	21:23	69	18:32 (2)
26	07:57		12:38 (1)	07:10		12:46 (1)	06:15			06:16		05:35	17:10 (2)	05:27		17:23 (2)
	17:14	78	13:56 (1)	18:02	70	13:56 (1)	18:42			20:26	77	21:04	18:29 (2)	21:23	69	18:32 (2)
27	07:56		12:38 (1)	07:08		12:48 (1)	06:13			06:14		05:34	17:11 (2)	05:27		17:22 (2)
	17:15	79	13:57 (1)	18:03	66	13:54 (1)	18:44			20:27	78	21:05	18:29 (2)	21:23	70	18:32 (2)
28	07:55		12:38 (1)	07:07		12:49 (1)	06:11			06:12		05:33	17:12 (2)	05:27		17:23 (2)
	17:17	80	13:58 (1)	18:05	64	13:53 (1)	18:45			20:29	79	21:07	18:30 (2)	21:23	70	18:33 (2)
29	07:53		12:38 (1)				07:09			06:11		05:32	17:12 (2)	05:28		17:23 (2)
	17:18	81	13:59 (1)				19:47			20:30	80	21:08	18:29 (2)	21:23	70	18:33 (2)
30	07:52		12:37 (1)				07:07			06:09		05:32	17:12 (2)	05:28		17:23 (2)
	17:20	82	13:59 (1)				19:48			20:31	81	21:09	18:29 (2)	21:23	70	18:33 (2)
31	07:51		12:37 (1)				07:05					05:31	17:13 (2)			
	17:21	83	14:00 (1)				19:49					21:10	18:30 (2)			
Sonnenscheinstunden		277		287		368		408		468		476		2118		
astr.max.mögl.Beschattung		1978		2280		251		1247		2545		2118		2118		
Red.Sonnenscheinwahrsch.		0,21		0,28		0,36		0,42		0,40		0,42		0,42		
Reduktion Betriebsdauer		0,81		0,81		0,81		0,81		0,81		0,81		0,81		
Reduktion Windrichtung		0,61		0,61		0,61		0,66		0,66		0,66		0,66		
Gesamte Reduktion		0,10		0,14		0,18		0,22		0,21		0,22		0,22		
Met.wahrsch.Beschattung		202		312		44		278		536		474		474		

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

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

Berechnung: 241_16_702_Schatten_Oberfeld Schattenrezeptor: E - Haggen 1
Annahmen für Schattenwurfberechnung

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor
N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Juli		August		September		Oktober		November		Dezember	
1	05:29	17:23 (2)	05:59	17:16 (2)	06:40	17:36 (2)	07:20	07:05	12:06 (1)	07:48	12:26 (1)	
	21:23	70 18:33 (2)	20:58	84 18:40 (2)	20:05	24 18:00 (2)	19:04	17:07	86 13:32 (1)	16:34	57 13:23 (1)	
2	05:30	17:23 (2)	06:00	17:15 (2)	06:41	17:44 (2)	07:21	07:06	12:06 (1)	07:49	12:28 (1)	
	21:23	71 18:34 (2)	20:56	85 18:40 (2)	20:03	8 17:52 (2)	19:02	17:05	87 13:33 (1)	16:34	55 13:23 (1)	
3	05:30	17:23 (2)	06:02	17:15 (2)	06:43		07:23	07:08	12:07 (1)	07:50	12:28 (1)	
	21:22	72 18:35 (2)	20:55	85 18:40 (2)	20:01		19:00	17:04	86 13:33 (1)	16:33	54 13:22 (1)	
4	05:31	17:23 (2)	06:03	17:14 (2)	06:44		07:24	07:09	12:06 (1)	07:51	12:29 (1)	
	21:22	71 18:34 (2)	20:53	85 18:39 (2)	19:59		18:58	17:02	86 13:32 (1)	16:33	53 13:22 (1)	
5	05:32	17:23 (2)	06:04	17:14 (2)	06:45		07:26	07:11	12:07 (1)	07:53	12:30 (1)	
	21:22	72 18:35 (2)	20:52	85 18:39 (2)	19:57		18:56	17:01	86 13:33 (1)	16:33	51 13:21 (1)	
6	05:32	17:23 (2)	06:06	17:14 (2)	06:47		07:27	07:12	12:06 (1)	07:54	12:32 (1)	
	21:21	73 18:36 (2)	20:50	85 18:39 (2)	19:55		18:54	16:59	86 13:32 (1)	16:32	50 13:22 (1)	
7	05:33	17:22 (2)	06:07	17:14 (2)	06:48		07:28	07:14	12:07 (1)	07:55	12:33 (1)	
	21:21	73 18:35 (2)	20:49	84 18:38 (2)	19:53		18:52	16:58	85 13:32 (1)	16:32	48 13:21 (1)	
8	05:34	17:22 (2)	06:08	17:14 (2)	06:49		07:30	07:15	12:08 (1)	07:56	12:34 (1)	
	21:21	74 18:36 (2)	20:47	84 18:38 (2)	19:51		18:50	24 14:11 (1)	16:57	84 13:32 (1)	16:32	47 13:21 (1)
9	05:35	17:22 (2)	06:09	17:14 (2)	06:51		07:31	13:39 (1)	07:17	12:08 (1)	07:57	12:35 (1)
	21:20	74 18:36 (2)	20:46	83 18:37 (2)	19:49		18:48	36 14:15 (1)	16:55	83 13:31 (1)	16:32	45 13:20 (1)
10	05:35	17:22 (2)	06:11	17:14 (2)	06:52		07:32	13:33 (1)	07:18	12:08 (1)	07:58	12:37 (1)
	21:19	75 18:37 (2)	20:44	83 18:37 (2)	19:47		18:46	45 14:18 (1)	16:54	83 13:31 (1)	16:32	43 13:20 (1)
11	05:36	17:22 (2)	06:12	17:14 (2)	06:53		07:34	13:30 (1)	07:20	12:08 (1)	07:59	12:38 (1)
	21:19	75 18:37 (2)	20:43	82 18:36 (2)	19:45		18:44	51 14:21 (1)	16:53	83 13:31 (1)	16:32	42 13:20 (1)
12	05:37	17:21 (2)	06:13	17:14 (2)	06:54		07:35	13:26 (1)	07:21	12:09 (1)	08:00	12:39 (1)
	21:18	76 18:37 (2)	20:41	82 18:36 (2)	19:43		18:42	57 14:23 (1)	16:51	82 13:31 (1)	16:32	41 13:20 (1)
13	05:38	17:21 (2)	06:15	17:14 (2)	06:56		07:37	13:24 (1)	07:23	12:10 (1)	08:01	12:40 (1)
	21:18	76 18:37 (2)	20:39	81 18:35 (2)	19:41		18:40	61 14:25 (1)	16:50	81 13:31 (1)	16:32	39 13:19 (1)
14	05:39	17:21 (2)	06:16	17:15 (2)	06:57		07:38	13:21 (1)	07:24	12:10 (1)	08:02	12:41 (1)
	21:17	77 18:38 (2)	20:38	80 18:35 (2)	19:39		18:38	65 14:26 (1)	16:49	80 13:30 (1)	16:32	38 13:19 (1)
15	05:40	17:20 (2)	06:17	17:15 (2)	06:58		07:40	13:19 (1)	07:26	12:11 (1)	08:02	12:41 (1)
	21:16	78 18:38 (2)	20:36	79 18:34 (2)	19:36		18:36	68 14:27 (1)	16:48	79 13:30 (1)	16:32	38 13:19 (1)
16	05:41	17:20 (2)	06:19	17:15 (2)	07:00		07:41	13:17 (1)	07:27	12:11 (1)	08:03	12:42 (1)
	21:15	78 18:38 (2)	20:34	77 18:32 (2)	19:34		18:35	71 14:28 (1)	16:47	78 13:29 (1)	16:32	37 13:19 (1)
17	05:42	17:20 (2)	06:20	17:15 (2)	07:01		07:42	13:16 (1)	07:29	12:12 (1)	08:04	12:44 (1)
	21:14	79 18:39 (2)	20:32	76 18:31 (2)	19:32		18:33	73 14:29 (1)	16:45	77 13:29 (1)	16:32	35 13:19 (1)
18	05:43	17:20 (2)	06:21	17:16 (2)	07:02		07:44	13:14 (1)	07:30	12:14 (1)	08:05	12:44 (1)
	21:14	79 18:39 (2)	20:31	75 18:31 (2)	19:30		18:31	75 14:29 (1)	16:44	75 13:29 (1)	16:33	35 13:19 (1)
19	05:44	17:19 (2)	06:23	17:16 (2)	07:04		07:45	13:13 (1)	07:31	12:14 (1)	08:05	12:45 (1)
	21:13	80 18:39 (2)	20:29	73 18:29 (2)	19:28		18:29	77 14:30 (1)	16:43	74 13:28 (1)	16:33	34 13:19 (1)
20	05:45	17:19 (2)	06:24	17:16 (2)	07:05		07:47	13:11 (1)	07:33	12:15 (1)	08:06	12:46 (1)
	21:12	80 18:39 (2)	20:27	72 18:28 (2)	19:26		18:27	79 14:30 (1)	16:42	73 13:28 (1)	16:33	34 13:20 (1)
21	05:46	17:18 (2)	06:25	17:17 (2)	07:06		07:48	13:11 (1)	07:34	12:16 (1)	08:07	12:46 (1)
	21:11	81 18:39 (2)	20:25	69 18:26 (2)	19:24		18:25	80 14:31 (1)	16:41	71 13:27 (1)	16:34	34 13:20 (1)
22	05:47	17:18 (2)	06:27	17:18 (2)	07:08		07:50	13:09 (1)	07:36	12:17 (1)	08:07	12:47 (1)
	21:10	81 18:39 (2)	20:23	68 18:26 (2)	19:22		18:24	82 14:31 (1)	16:41	70 13:27 (1)	16:34	34 13:21 (1)
23	05:48	17:18 (2)	06:28	17:19 (2)	07:09		07:51	13:09 (1)	07:37	12:17 (1)	08:08	12:47 (1)
	21:09	82 18:40 (2)	20:22	65 18:24 (2)	19:20		18:22	83 14:32 (1)	16:40	69 13:26 (1)	16:35	34 13:21 (1)
24	05:50	17:17 (2)	06:29	17:20 (2)	07:10		07:53	13:09 (1)	07:39	12:19 (1)	08:08	12:47 (1)
	21:07	83 18:40 (2)	20:20	62 18:22 (2)	19:18		18:20	83 14:32 (1)	16:39	68 13:27 (1)	16:35	34 13:21 (1)
25	05:51	17:18 (2)	06:31	17:21 (2)	07:12		06:54	12:08 (1)	07:40	12:19 (1)	08:08	12:48 (1)
	21:06	83 18:41 (2)	20:18	59 18:20 (2)	19:16		17:18	84 13:32 (1)	16:38	67 13:26 (1)	16:36	34 13:22 (1)
26	05:52	17:17 (2)	06:32	17:22 (2)	07:13		06:56	12:08 (1)	07:41	12:21 (1)	08:09	12:48 (1)
	21:05	83 18:40 (2)	20:16	57 18:19 (2)	19:14		17:17	85 13:33 (1)	16:37	65 13:26 (1)	16:37	35 13:23 (1)
27	05:53	17:17 (2)	06:33	17:24 (2)	07:15		06:57	12:07 (1)	07:43	12:22 (1)	08:09	12:48 (1)
	21:04	83 18:40 (2)	20:14	52 18:16 (2)	19:12		17:15	85 13:32 (1)	16:37	63 13:25 (1)	16:37	35 13:23 (1)
28	05:54	17:16 (2)	06:35	17:25 (2)	07:16		06:59	12:07 (1)	07:44	12:22 (1)	08:09	12:47 (1)
	21:03	84 18:40 (2)	20:12	49 18:14 (2)	19:10		17:13	86 13:33 (1)	16:36	62 13:24 (1)	16:38	37 13:24 (1)
29	05:56	17:16 (2)	06:36	17:28 (2)	07:17		07:00	12:06 (1)	07:45	12:24 (1)	08:10	12:48 (1)
	21:01	84 18:40 (2)	20:10	44 18:12 (2)	19:08		17:12	86 13:32 (1)	16:35	60 13:24 (1)	16:39	38 13:26 (1)
30	05:57	17:16 (2)	06:37	17:30 (2)	07:19		07:02	12:06 (1)	07:47	12:25 (1)	08:10	12:48 (1)
	21:00	84 18:40 (2)	20:08	39 18:09 (2)	19:06		17:10	87 13:33 (1)	16:35	59 13:24 (1)	16:40	39 13:27 (1)
31	05:58	17:15 (2)	06:39	17:32 (2)			07:03	12:07 (1)			08:10	12:48 (1)
	20:59	85 18:40 (2)	20:06	33 18:05 (2)			17:08	86 13:33 (1)			16:40	40 13:28 (1)
Sonnenscheinstunden	481		442		378		338		281		265	
astr.max.mögl.Beschattung	2416		2217		32		1709		2288		1270	
Red.Sonnenscheinwahrsch.	0,47		0,46		0,40		0,30		0,21		0,19	
Reduktion Betriebsdauer	0,81		0,81		0,81		0,81		0,81		0,81	
Reduktion Windrichtung	0,66		0,66		0,66		0,61		0,61		0,61	
Gesamte Reduktion	0,25		0,25		0,21		0,15		0,11		0,09	
Met.wahrsch.Beschattung	601		547		7		251		242		118	

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

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

Berechnung: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: F - Haggen 3

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni
1	08:10 16:42 55	13:47 (1) 07:50 14:42 (1) 17:23	07:05 18:06	16:17 (2) 07:03 17:04 (2) 19:51	06:07 20:33	05:30 21:11
2	08:10 16:43 55	13:48 (1) 07:48 14:43 (1) 17:24	07:03 18:08	16:16 (2) 07:01 17:04 (2) 19:52	06:06 20:34	05:30 21:11
3	08:10 16:44 54	13:48 (1) 07:47 14:42 (1) 17:26	07:01 18:09	16:15 (2) 06:59 17:05 (2) 19:54	06:04 20:35	05:29 21:12
4	08:10 16:45 54	13:49 (1) 07:46 14:43 (1) 17:27	06:59 18:11	16:14 (2) 06:57 17:05 (2) 19:55	06:03 20:37	05:28 21:13
5	08:10 16:46 54	13:49 (1) 07:44 14:43 (1) 17:29	06:57 18:12	16:13 (2) 06:55 17:05 (2) 19:56	06:01 20:38	05:28 21:14
6	08:10 16:47 54	13:50 (1) 07:43 14:44 (1) 17:31	06:55 18:14	16:13 (2) 06:53 17:05 (2) 19:58	06:00 20:40	05:27 21:15
7	08:09 16:48 53	13:50 (1) 07:42 14:43 (1) 17:32	06:53 18:15	16:12 (2) 06:51 17:05 (2) 19:59	05:58 20:41	05:27 21:16
8	08:09 16:49 53	13:51 (1) 07:40 14:44 (1) 17:34	06:51 18:16	16:12 (2) 06:49 17:05 (2) 20:01	05:57 20:42	05:27 21:16
9	08:09 16:50 53	13:51 (1) 07:39 14:44 (1) 17:35	06:49 18:18	16:12 (2) 06:47 17:05 (2) 20:02	05:55 20:44	05:26 21:17
10	08:08 16:51 52	13:52 (1) 07:37 14:44 (1) 17:37	06:47 18:19	16:11 (2) 06:45 17:05 (2) 20:03	05:54 20:45	05:26 21:18
11	08:08 16:53 51	13:53 (1) 07:36 14:44 (1) 17:38	06:45 18:21	16:11 (2) 06:44 17:05 (2) 20:05	05:52 20:46	05:26 21:18
12	08:08 16:54 51	13:54 (1) 07:34 14:45 (1) 17:40	06:43 18:22	16:11 (2) 06:42 17:04 (2) 20:06	05:51 20:48	05:25 21:19
13	08:07 16:55 50	13:54 (1) 07:33 14:44 (1) 17:42	06:41 18:24	16:12 (2) 06:40 17:04 (2) 20:08	05:50 20:49	05:25 21:20
14	08:07 16:56 49	13:56 (1) 07:31 14:45 (1) 17:43	06:39 18:25	16:12 (2) 06:38 17:03 (2) 20:09	05:48 20:50	05:25 21:20
15	08:06 16:58 49	13:56 (1) 07:29 14:45 (1) 17:45	06:37 18:27	16:12 (2) 06:36 17:02 (2) 20:10	05:47 20:51	05:25 21:21
16	08:05 16:59 47	13:57 (1) 07:28 14:44 (1) 17:46	06:35 18:28	16:13 (2) 06:34 17:01 (2) 20:12	05:46 20:53	05:25 21:21
17	08:05 17:00 46	13:58 (1) 07:26 14:44 (1) 17:48	06:33 18:30	16:14 (2) 06:32 17:00 (2) 20:13	05:44 20:54	05:25 21:21
18	08:04 17:02 45	13:59 (1) 07:24 14:44 (1) 17:49	06:31 18:31	16:14 (2) 06:30 16:59 (2) 20:15	05:43 20:55	05:25 21:22
19	08:03 17:03 43	14:01 (1) 07:23 14:44 (1) 17:51	06:29 18:32	16:15 (2) 06:28 16:58 (2) 20:16	05:42 20:56	05:25 21:22
20	08:02 17:05 42	14:02 (1) 07:21 14:44 (1) 17:52	16:37 (2) 06:27 16:46 (2) 18:34	06:27 16:56 (2) 20:17	05:41 20:58	05:25 21:23
21	08:02 17:06 40	14:03 (1) 07:19 14:43 (1) 17:54	16:31 (2) 06:25 16:51 (2) 18:35	06:25 16:55 (2) 20:19	05:40 20:59	05:25 21:23
22	08:01 17:08 39	14:04 (1) 07:17 14:43 (1) 17:55	16:28 (2) 06:23 16:53 (2) 18:37	06:23 16:53 (2) 20:20	05:39 21:00	05:25 21:23
23	08:00 17:09 36	14:06 (1) 07:16 14:42 (1) 17:57	16:25 (2) 06:21 16:56 (2) 18:38	06:21 16:51 (2) 20:22	05:38 21:01	05:26 21:23
24	07:59 17:11 33	14:08 (1) 07:14 14:41 (1) 17:59	16:23 (2) 06:19 16:57 (2) 18:40	06:19 16:48 (2) 20:23	05:37 21:02	05:26 21:23
25	07:58 17:12 30	14:10 (1) 07:12 14:40 (1) 18:00	16:21 (2) 06:17 16:59 (2) 18:41	06:18 16:45 (2) 20:24	05:36 21:03	05:26 21:23
26	07:57 17:14 26	14:12 (1) 07:10 14:38 (1) 18:02	16:21 (2) 06:15 17:01 (2) 18:42	06:16 16:34 (2) 20:26	05:35 21:04	05:27 21:23
27	07:56 17:15 21	14:15 (1) 07:08 14:36 (1) 18:03	16:19 (2) 06:13 17:02 (2) 18:44	06:14 17:02 (2) 20:27	05:34 21:05	05:27 21:23
28	07:55 17:17 14	14:19 (1) 07:06 14:33 (1) 18:05	16:18 (2) 06:11 17:03 (2) 18:45	06:12 18:45	05:33 20:29	05:27 21:23
29	07:53 17:18		07:09 19:47	06:11 20:30	05:32 21:08	05:28 21:23
30	07:52 17:20		07:07 19:48	06:09 20:31	05:32 21:09	05:28 21:23
31	07:51 17:21		07:05 19:49	06:09 21:10	05:31 21:10	05:28 21:23
Sonnenscheinstunden	277	287	368	408	468	476
astr. max. mögl. Beschattung	1249	285	1138			
Red. Sonnenscheinwahrsch.	0,21	0,28	0,36			
Reduktion Betriebsdauer	0,81	0,81	0,81			
Reduktion Windrichtung	0,64	0,65	0,65			
Gesamte Reduktion	0,11	0,15	0,19			
Met. wahrsch. Beschattung	134	42	215			

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

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

Berechnung: 241_16_702_Schatten_Oberfeld
 Annahmen für Schattenwurfberechnung

Schattenrezeptor: F - Haggen 3

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
 1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
 395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
 Startwindgeschwindigkeit 2,5m/s

	July	August	September	Oktober	November	Dezember		
1	05:29 21:23	05:59 20:58	06:40 20:05	07:20 19:04	16:51 (2) 17:04 (2)	07:05 17:07	07:48 16:34	13:35 (1) 51 14:26 (1)
2	05:30 21:23	06:00 20:56	06:41 20:03	07:21 19:02	16:50 (2) 17:05 (2)	07:06 17:08	07:49 16:34	13:36 (1) 51 14:27 (1)
3	05:30 21:22	06:02 20:55	06:43 20:01	07:23 19:00	16:49 (2) 17:04 (2)	07:08 17:04	07:50 16:33	13:35 (1) 53 14:28 (1)
4	05:31 21:22	06:03 20:53	06:44 19:59	07:24 18:58	16:49 (2) 17:43 (2)	07:09 17:02	07:51 16:33	13:35 (1) 53 14:28 (1)
5	05:31 21:22	06:04 20:52	06:45 19:57	07:25 18:56	16:49 (2) 17:42 (2)	07:11 17:01	07:53 16:33	13:35 (1) 54 14:29 (1)
6	05:32 21:21	06:06 20:50	06:47 19:55	07:27 18:54	16:49 (2) 17:42 (2)	07:12 16:59	07:54 16:32	13:36 (1) 54 14:30 (1)
7	05:33 21:21	06:07 20:49	06:48 19:53	07:28 18:52	16:48 (2) 17:41 (2)	07:14 16:58	07:55 16:32	13:36 (1) 54 14:30 (1)
8	05:34 21:21	06:08 20:47	06:49 19:51	07:30 18:50	16:48 (2) 17:40 (2)	07:15 16:57	07:56 16:32	13:37 (1) 54 14:31 (1)
9	05:35 21:20	06:09 20:46	06:50 19:49	07:31 18:48	16:49 (2) 17:40 (2)	07:17 16:55	07:57 16:32	13:37 (1) 54 14:31 (1)
10	05:35 21:19	06:11 20:44	06:52 19:47	07:32 18:46	16:48 (2) 17:39 (2)	07:18 16:54	07:58 16:32	13:37 (1) 55 14:32 (1)
11	05:36 21:19	06:12 20:43	06:53 19:45	07:34 18:44	16:49 (2) 17:39 (2)	07:20 16:53	07:59 16:32	13:38 (1) 54 14:32 (1)
12	05:37 21:18	06:13 20:41	06:54 19:43	07:35 18:42	16:49 (2) 17:37 (2)	07:21 16:51	08:00 16:32	13:38 (1) 55 14:33 (1)
13	05:38 21:18	06:15 20:39	06:56 19:41	07:37 18:40	16:50 (2) 17:36 (2)	07:23 16:50	08:01 16:32	13:38 (1) 55 14:33 (1)
14	05:39 21:17	06:16 20:38	06:57 19:39	07:38 18:38	16:51 (2) 17:35 (2)	07:24 16:49	08:02 14:05 (1)	13:39 (1) 55 14:34 (1)
15	05:40 21:16	06:17 20:36	06:58 19:36	07:40 18:36	16:52 (2) 17:34 (2)	07:26 16:48	08:02 14:09 (1)	13:39 (1) 55 14:34 (1)
16	05:41 21:15	06:19 20:34	07:00 19:34	07:41 18:35	16:53 (2) 17:32 (2)	07:27 16:47	08:03 14:11 (1)	13:39 (1) 56 14:35 (1)
17	05:42 21:14	06:20 20:32	07:01 19:32	07:42 18:33	16:54 (2) 17:30 (2)	07:29 16:45	08:04 14:13 (1)	13:40 (1) 55 14:35 (1)
18	05:43 21:14	06:21 20:31	07:02 19:30	17:16 (2) 17:31 (2)	07:44 18:31	07:30 16:44	08:05 14:15 (1)	13:40 (1) 55 14:35 (1)
19	05:44 21:13	06:23 20:29	07:04 19:28	17:12 (2) 17:35 (2)	07:45 18:29	07:31 16:43	08:05 14:16 (1)	13:41 (1) 55 14:36 (1)
20	05:45 21:12	06:24 20:27	07:05 19:26	17:09 (2) 17:37 (2)	07:47 18:27	07:33 16:42	08:06 14:18 (1)	13:41 (1) 56 14:37 (1)
21	05:46 21:11	06:25 20:25	07:06 19:24	17:06 (2) 17:38 (2)	07:48 18:25	07:34 16:41	08:07 14:18 (1)	13:41 (1) 56 14:37 (1)
22	05:47 21:10	06:27 20:23	07:08 19:22	17:03 (2) 17:39 (2)	07:50 18:24	07:36 16:41	08:07 14:20 (1)	13:42 (1) 56 14:38 (1)
23	05:48 21:09	06:28 20:22	07:09 19:20	17:02 (2) 17:40 (2)	07:51 18:22	07:37 16:40	08:08 14:20 (1)	13:42 (1) 56 14:38 (1)
24	05:50 21:07	06:29 20:20	07:10 19:18	16:59 (2) 17:41 (2)	07:53 18:20	07:39 16:39	08:08 14:22 (1)	13:43 (1) 55 14:38 (1)
25	05:51 21:06	06:31 20:18	07:12 19:16	16:57 (2) 17:41 (2)	06:54 17:18	07:40 16:38	08:08 14:22 (1)	13:44 (1) 55 14:39 (1)
26	05:52 21:05	06:32 20:16	07:13 19:14	16:56 (2) 17:43 (2)	06:56 17:17	07:41 16:37	08:09 14:23 (1)	13:44 (1) 55 14:39 (1)
27	05:53 21:04	06:33 20:14	07:15 19:12	16:55 (2) 17:43 (2)	06:57 17:15	07:43 16:37	08:09 14:24 (1)	13:44 (1) 55 14:39 (1)
28	05:54 21:03	06:35 20:12	07:16 19:10	16:54 (2) 17:44 (2)	06:59 17:13	07:44 16:36	08:09 14:24 (1)	13:44 (1) 56 14:40 (1)
29	05:55 21:01	06:36 20:10	07:17 19:08	16:53 (2) 17:43 (2)	07:00 17:12	07:45 16:35	08:10 14:25 (1)	13:46 (1) 55 14:41 (1)
30	05:57 21:00	06:37 20:08	07:19 19:06	16:51 (2) 17:43 (2)	07:02 17:10	07:47 16:35	08:10 14:26 (1)	13:46 (1) 55 14:41 (1)
31	05:58 20:59	06:39 20:06		07:03 17:08			08:10 16:40	13:47 (1) 55 14:42 (1)
Sonnenscheinstunden	481	442	378	338	281	265	1693	
astr. max. mögl. Beschattung			505	935	662	1693		
Red. Sonnenscheinwahrsch.			0,40	0,30	0,21	0,19		
Reduktion Betriebsdauer			0,81	0,81	0,81	0,81		
Reduktion Windrichtung			0,65	0,65	0,64	0,64		
Gesamte Reduktion			0,21	0,16	0,11	0,10		
Met. wahrsch. Beschattung			108	147	74	164		

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)	Schattende (WEA mit letztem Schatten)
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SHADOW - Kalender

Berechnung: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: G - Erbskraut 1

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

Table with 12 columns for months (Januar to Dezember) and 31 rows of daily data. Includes summary rows for 'Sonnenscheinstunden', 'astr. max. mögl. Beschattung', 'Red. Sonnenscheinwahrsch.', 'Reduktion Betriebsdauer', 'Reduktion Windrichtung', 'Gesamte Reduktion', and 'Met. wahrsch. Beschattung'.

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

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

SHADOW - Kalender

Berechnung: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: H - Rütweiid 1

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:10 16:42	07:50 17:23	07:05 18:06	07:03 19:51	06:07 20:33	05:30 21:11	05:29 21:23	05:59 20:58	06:40 20:05	07:20 19:04	07:05 17:07	07:48 16:34
2	08:10 16:43	07:49 17:24	07:03 18:08	07:01 19:52	06:06 20:34	05:30 21:11	05:30 21:23	06:00 20:56	06:41 20:03	07:21 19:02	07:06 17:05	07:49 16:34
3	08:10 16:44	07:47 17:26	07:01 18:09	06:59 19:54	06:04 20:35	05:29 21:12	05:30 21:23	06:02 20:55	06:43 20:01	07:23 19:00	07:08 17:04	07:50 16:33
4	08:10 16:45	07:46 17:27	06:59 18:11	06:57 19:55	06:03 20:37	05:28 21:13	05:31 21:22	06:03 20:53	06:44 19:59	07:24 18:58	07:09 17:02	07:51 16:33
5	08:10 16:46	07:44 17:29	06:57 18:12	06:55 19:56	06:01 20:38	05:28 21:14	05:31 21:22	06:04 20:52	06:45 19:57	07:26 18:56	07:11 17:01	07:53 16:33
6	08:10 16:47	07:43 17:31	06:55 18:14	06:53 19:58	06:00 20:40	05:27 21:15	05:32 21:21	06:06 20:50	06:47 19:55	07:27 18:54	07:12 16:59	07:54 16:32
7	08:09 16:48	07:42 17:32	06:53 18:15	06:51 19:59	05:58 20:41	05:27 21:16	05:33 21:21	06:07 20:49	06:48 19:53	07:28 18:52	07:14 16:58	07:55 16:32
8	08:09 16:49	07:40 17:34	06:51 18:17	06:49 20:01	05:57 20:42	05:27 21:16	05:34 21:21	06:08 20:47	06:49 19:51	07:30 18:50	07:15 16:57	07:56 16:32
9	08:09 16:50	07:39 17:35	06:49 18:18	06:47 20:02	05:55 20:44	05:26 21:17	05:35 21:20	06:09 20:46	06:51 19:49	07:31 18:48	07:17 16:55	07:57 16:32
10	08:08 16:51	07:37 17:37	06:47 18:19	06:45 20:03	05:54 20:45	05:26 21:18	05:35 21:20	06:11 20:44	06:52 19:47	07:32 18:46	07:18 16:54	07:58 16:32
11	08:08 16:53	07:36 17:38	06:45 18:21	06:44 20:05	05:52 20:46	05:26 21:18	05:36 21:19	06:12 20:43	06:53 19:45	07:34 18:44	07:20 16:53	07:59 16:32
12	08:08 16:54	07:34 17:40	06:43 18:22	06:42 20:06	05:51 20:48	05:25 21:19	05:37 21:18	06:13 20:41	06:54 19:43	07:35 18:42	07:21 16:51	08:00 16:32
13	08:07 16:55	07:33 17:42	06:41 18:24	06:40 20:08	05:50 20:49	05:25 21:20	05:38 21:18	06:15 20:39	06:56 19:41	07:37 18:40	07:23 16:50	08:01 16:32
14	08:07 16:56	07:31 17:43	06:39 18:25	06:38 20:09	05:48 20:50	05:25 21:20	05:39 21:17	06:16 20:38	06:57 19:39	07:38 18:38	07:24 16:49	08:02 16:32
15	08:06 16:58	07:29 17:45	06:37 18:27	06:36 20:10	05:47 20:51	05:25 21:21	05:40 21:16	06:17 20:36	06:58 19:36	07:40 18:36	07:26 16:48	08:02 16:32
16	08:05 16:59	07:28 17:46	06:35 18:28	06:34 20:12	05:46 20:53	05:25 21:21	05:41 21:15	06:19 20:34	07:00 19:34	07:41 18:35	07:27 16:47	08:03 16:32
17	08:05 17:01	07:26 17:48	06:33 18:30	06:32 20:13	05:44 20:54	05:25 21:22	05:42 21:14	06:20 20:32	07:01 19:32	07:42 18:33	07:29 16:45	08:04 16:32
18	08:04 17:02	07:24 17:49	06:31 18:31	06:30 20:15	05:43 20:55	05:25 21:22	05:43 21:14	06:21 20:31	07:02 19:30	07:44 18:31	07:30 16:44	08:05 16:33
19	08:03 17:03	07:23 17:51	06:29 18:32	06:28 20:16	05:42 20:56	05:25 21:22	05:44 21:13	06:23 20:29	07:04 19:28	07:45 18:29	07:31 16:43	08:05 16:33
20	08:02 17:05	07:21 17:52	06:27 18:34	06:27 20:17	05:41 20:58	05:25 21:23	05:45 21:12	06:24 20:27	07:05 19:26	07:47 18:27	07:33 16:42	08:06 16:33
21	08:02 17:06	07:19 17:54	06:25 18:35	06:25 20:19	05:40 20:59	05:25 21:23	05:46 21:11	06:25 20:25	07:06 19:24	07:48 18:25	07:34 16:41	08:07 16:34
22	08:01 17:08	07:17 17:55	06:23 18:37	06:23 20:20	05:39 21:00	05:25 21:23	05:47 21:10	06:27 20:24	07:08 19:22	07:50 18:24	07:36 16:41	08:07 16:34
23	08:00 17:09	07:16 17:57	06:21 18:38	06:21 20:22	05:38 21:01	05:26 21:23	05:48 21:09	06:28 20:22	07:09 19:20	07:51 18:22	07:37 16:40	08:08 16:35
24	07:59 17:11	07:14 17:59	06:19 18:40	06:19 20:23	05:37 21:02	05:26 21:23	05:50 21:08	06:29 20:20	07:11 19:18	07:53 18:20	07:39 16:39	08:08 16:35
25	07:58 17:12	07:12 18:00	06:17 18:41	06:17 20:24	05:36 21:03	05:26 21:23	05:51 21:06	06:31 20:18	07:12 19:16	07:12 17:18	06:54 16:38	08:08 16:36
26	07:57 17:14	07:10 18:02	06:15 18:42	06:16 20:26	05:35 21:04	05:27 21:23	05:52 21:05	06:32 20:16	07:13 19:14	06:56 17:17	07:41 16:37	08:09 16:37
27	07:56 17:15	07:08 18:03	06:13 18:44	06:14 20:27	05:34 21:06	05:27 21:23	05:53 21:04	06:33 20:14	07:15 19:12	06:57 17:15	07:43 16:37	08:09 16:37
28	07:55 17:17	07:07 18:05	06:11 18:45	06:12 20:29	05:33 21:07	05:27 21:23	05:54 21:03	06:35 20:12	07:16 19:10	06:59 17:13	07:44 16:36	08:09 16:38
29	07:53 17:18	07:09 19:47	06:11 20:30	06:11 21:08	05:32 21:08	05:28 21:23	05:56 21:02	06:36 20:10	07:17 19:08	07:00 17:12	07:45 16:35	08:10 16:39
30	07:52 17:20	07:07 19:48	06:09 20:31	06:09 21:09	05:32 21:09	05:28 21:23	05:57 21:00	06:37 20:08	07:19 19:06	07:02 17:10	07:47 16:35	08:10 16:40
31	07:51 17:21	07:05 19:49	06:07 20:31	06:07 21:10	05:31 21:10	05:28 20:59	05:58 20:07	06:39 20:07	07:03 17:08	07:03 17:08	07:03 16:40	08:10 16:40
Sonnenscheinstunden	277	287	368	408	468	476	481	442	378	338	281	265
astr.max.mögl.Beschattung												
Red.Sonnenscheinwahrsch.												
Reduktion Betriebsdauer												
Reduktion Windrichtung												
Gesamte Reduktion												
Met.wahrsch.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: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: I - Rütiweid 2

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni	
1	08:10 16:42 52	11:20 (1) 07:50 12:12 (1) 17:23	07:05	13:26 (2) 07:03	06:07	05:30	
2	08:10 16:43 53	11:20 (1) 07:48 12:13 (1) 17:24	18:06 76	14:42 (2) 19:51	20:33	21:11	
3	08:10 16:44 53	11:20 (1) 07:47 12:13 (1) 17:26	07:03	13:25 (2) 07:01	06:06	05:30	
4	08:10 16:45 52	11:21 (1) 07:46 12:13 (1) 17:27	18:08 77	14:42 (2) 19:52	20:34	21:11	
5	08:10 16:46 53	11:21 (1) 07:44 12:14 (1) 17:29	07:01	13:25 (2) 06:59	06:04	05:29	
6	08:10 16:47 53	11:22 (1) 07:43 12:15 (1) 17:31	18:09 77	14:42 (2) 19:54	20:35	21:12	
7	08:09 16:48 52	11:22 (1) 07:42 12:14 (1) 17:32	06:59	13:24 (2) 06:57	06:03	05:28	
8	08:09 16:49 52	11:23 (1) 07:40 12:15 (1) 17:34	18:11 78	14:42 (2) 19:55	20:37	21:13	
9	08:09 16:50 52	11:24 (1) 07:39 12:16 (1) 17:35	06:57	13:24 (2) 06:55	06:01	05:28	
10	08:08 16:51 52	11:24 (1) 07:37 12:16 (1) 17:37	18:12 78	14:42 (2) 19:56	20:38	21:14	
11	08:08 16:53 51	11:24 (1) 07:36 12:15 (1) 17:38	06:55	13:24 (2) 06:53	06:00	05:27	
12	08:08 16:54 51	11:25 (1) 07:34 12:16 (1) 17:40	18:14 78	14:42 (2) 19:58	20:40	21:15	
13	08:07 16:55 51	11:26 (1) 07:31 12:16 (1) 17:42	06:53	13:24 (2) 06:51	05:58	05:27	
14	08:07 16:56 51	11:27 (1) 07:28 12:17 (1) 17:44	18:15 78	14:42 (2) 19:59	20:41	21:16	
15	08:06 16:58 51	11:27 (1) 07:26 12:17 (1) 17:46	06:51	13:24 (2) 06:49	05:57	05:27	
16	08:05 17:01 49	11:26 (1) 07:29 12:16 (1) 17:48	14:10 (2) 18:17	77	14:41 (2) 20:01	20:42 21:16	
17	08:04 17:02 48	11:29 (1) 07:24 12:17 (1) 17:49	13:52 (2) 06:49	76	13:25 (2) 06:47	05:55 05:26	
18	08:04 17:03 48	11:29 (1) 07:23 12:17 (1) 17:51	14:15 (2) 18:18	76	14:41 (2) 20:02	20:44 21:17	
19	08:03 17:05 47	11:30 (1) 07:21 12:18 (1) 17:53	13:49 (2) 06:47	76	13:25 (2) 06:45	05:54 05:26	
20	08:03 17:06 45	11:31 (1) 07:19 12:18 (1) 17:55	14:20 (2) 18:19	76	14:41 (2) 20:03	20:45 21:18	
21	08:02 17:08 44	11:32 (1) 07:17 12:19 (1) 17:57	13:46 (2) 06:45	76	13:26 (2) 06:44	05:52 05:26	
22	08:02 17:09 44	11:33 (1) 07:16 12:20 (1) 17:59	14:23 (2) 18:21	74	14:40 (2) 20:05	20:46 21:18	
23	08:02 17:11 41	11:34 (1) 07:14 12:21 (1) 18:01	13:43 (2) 06:43	73	13:26 (2) 06:42	05:51 05:25	
24	08:02 17:12 39	11:35 (1) 07:12 12:22 (1) 18:03	14:25 (2) 18:22	73	14:39 (2) 20:06	20:48 21:19	
25	08:02 17:14 38	11:35 (1) 07:10 12:23 (1) 18:05	13:41 (2) 06:41	72	13:27 (2) 06:40	05:50 05:25	
26	08:02 17:15 35	11:36 (1) 07:08 12:24 (1) 18:07	14:28 (2) 18:24	72	14:39 (2) 20:08	20:49 21:20	
27	08:02 17:17 31	11:37 (1) 07:07 12:25 (1) 18:09	13:39 (2) 06:39	70	13:28 (2) 06:38	05:48 05:25	
28	08:02 17:18 28	11:38 (1) 07:05 12:26 (1) 18:11	14:29 (2) 18:25	70	14:38 (2) 20:09	20:50 21:20	
29	08:02 17:20 23	11:39 (1) 07:04 12:27 (1) 18:13	13:37 (2) 06:37	68	13:29 (2) 06:36	05:47 05:25	
30	08:02 17:21 15	11:40 (1) 07:03 12:28 (1) 18:15	14:31 (2) 18:27	68	14:37 (2) 20:10	20:51 21:21	
31	08:02 17:22 15	11:41 (1) 07:02 12:29 (1) 18:17	13:37 (2) 06:35	65	13:31 (2) 06:34	05:46 05:25	
	08:02 17:23 15	11:42 (1) 07:01 12:30 (1) 18:19	14:33 (2) 18:28	65	14:36 (2) 20:12	20:53 21:21	
	08:02 17:24 15	11:43 (1) 07:00 12:31 (1) 18:21	13:35 (2) 06:33	63	13:32 (2) 06:32	05:44 05:25	
	08:02 17:25 15	11:44 (1) 06:59 12:32 (1) 18:23	14:35 (2) 18:30	63	14:35 (2) 20:13	20:54 21:22	
	08:02 17:26 15	11:45 (1) 06:58 12:33 (1) 18:25	13:33 (2) 06:31	62	13:34 (2) 06:30	05:43 05:25	
	08:02 17:27 15	11:46 (1) 06:57 12:34 (1) 18:27	14:35 (2) 18:31	59	14:33 (2) 20:15	20:55 21:22	
	08:02 17:28 15	11:47 (1) 06:56 12:35 (1) 18:29	13:32 (2) 06:29	56	13:36 (2) 06:28	05:42 05:25	
	08:02 17:29 15	11:48 (1) 06:55 12:36 (1) 18:31	14:36 (2) 18:32	56	14:32 (2) 20:16	20:56 21:22	
	08:02 17:30 15	11:49 (1) 06:54 12:37 (1) 18:33	13:32 (2) 06:27	55	13:39 (2) 06:27	05:41 05:25	
	08:02 17:31 15	11:50 (1) 06:53 12:38 (1) 18:35	14:38 (2) 18:34	51	14:30 (2) 20:17	20:58 21:23	
	08:02 17:32 15	11:51 (1) 06:52 12:39 (1) 18:37	13:31 (2) 06:25	46	13:42 (2) 06:25	05:40 05:25	
	08:02 17:33 15	11:52 (1) 06:51 12:40 (1) 18:39	14:38 (2) 18:35	46	14:28 (2) 20:19	20:59 21:23	
	08:02 17:34 15	11:53 (1) 06:50 12:41 (1) 18:41	13:30 (2) 06:23	41	13:45 (2) 06:23	05:39 05:25	
	08:02 17:35 15	11:54 (1) 06:49 12:42 (1) 18:43	14:39 (2) 18:37	41	14:26 (2) 20:20	21:00 21:23	
	08:02 17:36 15	11:55 (1) 06:48 12:43 (1) 18:45	13:29 (2) 06:21	33	13:50 (2) 06:21	05:38 05:26	
	08:02 17:37 15	11:56 (1) 06:47 12:44 (1) 18:47	14:40 (2) 18:38	33	14:23 (2) 20:22	21:01 21:23	
	08:02 17:38 15	11:57 (1) 06:46 12:45 (1) 18:49	13:28 (2) 06:19	24	13:55 (2) 06:19	05:37 05:26	
	08:02 17:39 15	11:58 (1) 06:45 12:46 (1) 18:51	14:40 (2) 18:40	24	14:19 (2) 20:23	21:02 21:23	
	08:02 17:40 15	11:59 (1) 06:44 12:47 (1) 18:53	13:27 (2) 06:17	9	14:03 (2) 06:18	05:36 05:26	
	08:02 17:41 15	12:00 (1) 06:43 12:48 (1) 18:55	14:40 (2) 18:41	9	14:12 (2) 20:24	21:03 21:23	
	08:02 17:42 15	12:01 (1) 06:42 12:49 (1) 18:57	13:27 (2) 06:15		06:16	05:35 05:27	
	08:02 17:43 15	12:02 (1) 06:41 12:50 (1) 18:59	14:42 (2) 18:42		20:26	21:04 21:23	
	08:02 17:44 15	12:03 (1) 06:40 12:51 (1) 19:01	13:27 (2) 06:13		06:14	05:34 05:27	
	08:02 17:45 15	12:04 (1) 06:39 12:52 (1) 19:03	14:42 (2) 18:44		20:27	21:06 21:23	
	08:02 17:46 15	12:05 (1) 06:38 12:53 (1) 19:05	13:26 (2) 06:11		06:12	05:33 05:27	
	08:02 17:47 15	12:06 (1) 06:37 12:54 (1) 19:07	14:42 (2) 18:45		20:29	21:07 21:23	
	08:02 17:48 15	12:07 (1) 06:36 12:55 (1) 19:09	07:09		06:11	05:32 05:28	
	08:02 17:49 15	12:08 (1) 06:35 12:56 (1) 19:11	19:47		20:30	21:08 21:23	
	08:02 17:50 15	12:09 (1) 06:34 12:57 (1) 19:13	07:07		06:09	05:32 05:28	
	08:02 17:51 15	12:10 (1) 06:33 12:58 (1) 19:15	19:48		20:31	21:09 21:23	
	08:02 17:52 15	12:11 (1) 06:32 12:59 (1) 19:17	07:05		05:31		
	08:02 17:53 15	12:12 (1) 06:31 13:00 (1) 19:19	19:49		21:10		
	08:02 17:54 15	12:13 (1) 06:30 13:01 (1) 19:21	368	408	468	476	
Sonnenscheinstunden	277	287					
astr.max.mögl.Beschattung	1403	1182	1575				
Red.Sonnenscheinwahrsch.	0,21	0,28	0,36				
Reduktion Betriebsdauer	0,81	0,81	0,81				
Reduktion Windrichtung	0,59	0,64	0,64				
Gesamte Reduktion	0,10	0,14	0,19				
Met.wahrsch.Beschattung	138	169	292				

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

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

Berechnung: 241_16_702_Schatten_Oberfeld Schattenrezeptor: I - Rütiweid 2
Annahmen für Schattenwurfberechnung
Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor
N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	July	August	September	Oktober	November	Dezember			
1	05:29 21:23	05:59 20:58	06:40 20:05	07:20 19:04	14:06 (2) 15:19 (2)	07:05 17:07	13:18 (2) 13:48 (2)	07:48 16:34	11:06 (1) 11:58 (1)
2	05:30 21:23	06:00 20:56	06:41 20:03	07:21 19:02	14:05 (2) 15:19 (2)	07:06 17:05	13:22 (2) 13:44 (2)	07:49 16:34	11:07 (1) 11:59 (1)
3	05:30 21:23	06:02 20:55	06:43 20:01	07:23 19:00	14:03 (2) 15:18 (2)	07:08 17:04	13:29 (2) 13:38 (2)	07:50 16:33	11:07 (1) 11:59 (1)
4	05:31 21:22	06:03 20:53	06:44 19:59	07:24 18:58	14:03 (2) 15:19 (2)	07:09 17:02	13:29 (2) 13:38 (2)	07:51 16:33	11:07 (1) 11:59 (1)
5	05:32 21:22	06:04 20:52	06:45 19:57	07:26 18:56	14:01 (2) 15:18 (2)	07:11 17:01	13:29 (2) 13:38 (2)	07:53 16:33	11:07 (1) 11:59 (1)
6	05:32 21:21	06:06 20:50	06:47 19:55	07:27 18:54	14:01 (2) 15:19 (2)	07:12 16:59	13:32 (2) 13:41 (2)	07:54 16:32	11:08 (1) 12:01 (1)
7	05:33 21:21	06:07 20:49	06:48 19:53	07:28 18:52	14:00 (2) 15:18 (2)	07:14 16:58	13:35 (2) 13:44 (2)	07:55 16:32	11:08 (1) 12:01 (1)
8	05:34 21:21	06:08 20:47	06:49 19:51	07:30 18:50	14:00 (2) 15:18 (2)	07:15 16:57	13:35 (2) 13:44 (2)	07:56 16:32	11:09 (1) 12:01 (1)
9	05:35 21:20	06:09 20:46	06:51 19:49	07:31 18:48	13:59 (2) 15:17 (2)	07:17 16:55	13:35 (2) 13:44 (2)	07:57 16:32	11:09 (1) 12:02 (1)
10	05:35 21:19	06:11 20:44	06:52 19:47	07:32 18:46	13:59 (2) 15:16 (2)	07:18 16:54	13:35 (2) 13:44 (2)	07:58 16:32	11:09 (1) 12:02 (1)
11	05:36 21:19	06:12 20:43	06:53 19:45	07:34 18:44	13:59 (2) 15:17 (2)	07:20 16:53	11:18 (1) 11:34 (1)	07:59 16:32	11:10 (1) 12:02 (1)
12	05:37 21:18	06:13 20:41	06:54 19:43	07:35 18:42	13:58 (2) 15:16 (2)	07:21 16:51	11:15 (1) 11:38 (1)	08:00 16:32	11:10 (1) 12:03 (1)
13	05:38 21:18	06:15 20:39	06:56 19:41	07:37 18:40	13:59 (2) 15:15 (2)	07:23 16:50	11:13 (1) 11:41 (1)	08:01 16:32	11:11 (1) 12:03 (1)
14	05:39 21:17	06:16 20:38	06:57 19:39	07:38 18:38	13:58 (2) 15:14 (2)	07:24 16:49	11:11 (1) 11:42 (1)	08:02 16:32	11:12 (1) 12:04 (1)
15	05:40 21:16	06:17 20:36	06:58 19:36	07:40 18:36	13:59 (2) 15:14 (2)	07:26 16:48	11:10 (1) 11:45 (1)	08:02 16:32	11:11 (1) 12:04 (1)
16	05:41 21:15	06:19 20:34	07:00 19:34	07:41 18:35	13:59 (2) 15:13 (2)	07:27 16:47	11:08 (1) 11:46 (1)	08:03 16:32	11:12 (1) 12:04 (1)
17	05:42 21:14	06:20 20:32	07:01 19:32	07:42 18:33	13:59 (2) 15:13 (2)	07:29 16:45	11:08 (1) 11:47 (1)	08:04 16:32	11:13 (1) 12:05 (1)
18	05:43 21:14	06:21 20:31	07:02 19:30	07:44 18:31	13:59 (2) 15:11 (2)	07:30 16:44	11:08 (1) 11:49 (1)	08:05 16:33	11:14 (1) 12:06 (1)
19	05:44 21:13	06:23 20:29	07:04 19:28	14:44 (2) 15:06 (2)	07:45 18:29	14:00 (2) 16:43	11:07 (1) 11:50 (1)	08:05 16:33	11:13 (1) 12:06 (1)
20	05:45 21:12	06:24 20:27	07:05 19:26	14:37 (2) 15:09 (2)	07:47 18:27	14:00 (2) 16:42	11:07 (1) 11:51 (1)	08:06 16:33	11:14 (1) 12:07 (1)
21	05:46 21:11	06:25 20:25	07:06 19:24	14:32 (2) 15:11 (2)	07:48 18:25	14:01 (2) 16:41	11:06 (1) 11:51 (1)	08:07 16:34	11:14 (1) 12:07 (1)
22	05:47 21:10	06:27 20:24	07:08 19:22	14:27 (2) 15:12 (2)	07:50 18:24	14:02 (2) 16:41	11:06 (1) 11:53 (1)	08:07 16:34	11:15 (1) 12:08 (1)
23	05:48 21:09	06:28 20:22	07:09 19:20	14:24 (2) 15:14 (2)	07:51 18:22	14:03 (2) 16:40	11:05 (1) 11:53 (1)	08:08 16:35	11:15 (1) 12:08 (1)
24	05:50 21:07	06:29 20:20	07:10 19:18	14:21 (2) 15:15 (2)	07:53 18:20	14:04 (2) 16:39	11:06 (1) 11:54 (1)	08:08 16:35	11:15 (1) 12:08 (1)
25	05:51 21:06	06:31 20:18	07:12 19:16	14:17 (2) 15:16 (2)	06:54 17:18	13:05 (2) 14:03 (2)	11:05 (1) 11:55 (1)	08:08 16:36	11:16 (1) 12:09 (1)
26	05:52 21:05	06:32 20:16	07:13 19:14	14:16 (2) 15:17 (2)	06:56 17:17	13:07 (2) 14:02 (2)	11:06 (1) 11:56 (1)	08:09 16:37	11:17 (1) 12:09 (1)
27	05:53 21:04	06:33 20:14	07:15 19:12	14:13 (2) 15:17 (2)	06:57 17:15	13:07 (2) 14:00 (2)	11:06 (1) 11:56 (1)	08:09 16:37	11:17 (1) 12:09 (1)
28	05:54 21:03	06:35 20:12	07:16 19:10	14:11 (2) 15:18 (2)	06:59 17:13	13:09 (2) 13:58 (2)	11:05 (1) 11:56 (1)	08:09 16:38	11:17 (1) 12:10 (1)
29	05:56 21:02	06:36 20:10	07:17 19:08	14:09 (2) 15:18 (2)	07:00 17:12	13:11 (2) 13:56 (2)	11:06 (1) 11:57 (1)	08:10 16:39	11:18 (1) 12:11 (1)
30	05:57 21:00	06:37 20:08	07:19 19:06	14:07 (2) 15:18 (2)	07:02 17:10	13:13 (2) 13:54 (2)	11:06 (1) 11:57 (1)	08:10 16:40	11:19 (1) 12:11 (1)
31	05:58 20:59	06:39 20:07	07:20 19:05	07:03 17:08	13:16 (2) 13:52 (2)	07:47 16:35	08:10 16:40	11:19 (1) 12:12 (1)	
Sonnenscheinstunden	481	442	378	338	281	265			
astr. max. mögl. Beschattung			633	2101	890	1628			
Red. Sonnenscheinwahrsch.			0,40	0,30	0,21	0,19			
Reduktion Betriebsdauer			0,81	0,81	0,81	0,81			
Reduktion Windrichtung			0,64	0,64	0,59	0,59			
Gesamte Reduktion			0,21	0,15	0,10	0,09			
Met. wahrsch. Beschattung			132	322	91	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	Zeitpunkt (SS:MM) Schattende	(WEA mit erstem Schatten)	(WEA mit letztem Schatten)
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Projekt:

241_11_700_Appenzell_2022

Lizenzierter Anwender:

JH Wind GmbH
Gruberhof 8
DE-79110 Freiburg
+49 0761 15612852
Johannes Hagemann / jh-wind@email.de
Berechnet:
26.01.2023 22:43/3.6.355

SHADOW - Kalender

Berechnung: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: J - Chozeren 1

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

Table with 12 columns (Januar to Dezember) and multiple rows of solar data including sunrise/sunset times, shadow lengths, and reduction percentages. Includes summary rows at the bottom.

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) Schatteneende (WEA mit letztem Schatten)

SHADOW - Kalender

Berechnung: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: K - Rütweiid 3

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni
1	08:10 16:42 35	09:43 (1) 07:50 10:18 (1) 17:23 54	10:13 (2) 07:05 11:07 (2) 18:06	07:03 19:51	06:07 20:33	05:30 21:11
2	08:10 16:43 35	09:43 (1) 07:49 10:18 (1) 17:24 55	10:13 (2) 07:03 11:08 (2) 18:08	07:01 19:52	06:06 20:34	05:30 21:11
3	08:10 16:44 35	09:43 (1) 07:47 10:18 (1) 17:26 54	10:13 (2) 07:01 11:07 (2) 18:09	06:59 19:54	06:04 20:35	05:29 21:12
4	08:10 16:45 35	09:43 (1) 07:46 10:18 (1) 17:27 55	10:13 (2) 06:59 11:08 (2) 18:11	06:57 19:55	06:03 20:37	05:28 21:13
5	08:10 16:46 35	09:44 (1) 07:45 10:19 (1) 17:29 54	10:13 (2) 06:57 11:07 (2) 18:12	06:55 19:56	06:01 20:38	05:28 21:14
6	08:10 16:47 43	09:45 (1) 07:43 10:37 (2) 17:31 55	10:13 (2) 06:55 11:08 (2) 18:14	06:53 19:58	06:00 20:40	05:27 21:15
7	08:09 16:48 48	09:45 (1) 07:42 10:39 (2) 17:32 54	10:13 (2) 06:53 11:07 (2) 18:15	06:51 19:59	05:58 20:41	05:27 21:16
8	08:09 16:49 52	09:45 (1) 07:40 10:42 (2) 17:34 54	10:14 (2) 06:51 11:08 (2) 18:17	06:49 20:01	05:57 20:42	05:27 21:16
9	08:09 16:50 56	09:46 (1) 07:39 10:45 (2) 17:35 53	10:14 (2) 06:49 11:07 (2) 18:18	06:47 20:02	05:55 20:44	05:26 21:17
10	08:08 16:51 58	09:46 (1) 07:37 10:46 (2) 17:37 52	10:15 (2) 06:47 11:07 (2) 18:19	06:46 20:03	05:54 20:45	05:26 21:18
11	08:08 16:53 61	09:47 (1) 07:36 10:48 (2) 17:38 51	10:15 (2) 06:45 11:06 (2) 18:21	06:44 20:05	05:52 20:46	05:26 21:18
12	08:08 16:54 61	09:48 (1) 07:34 10:49 (2) 17:40 50	10:15 (2) 06:43 11:05 (2) 18:22	06:42 20:06	05:51 20:48	05:25 21:19
13	08:07 16:55 62	09:48 (1) 07:33 10:50 (2) 17:42 48	10:17 (2) 06:41 11:05 (2) 18:24	06:40 20:08	05:50 20:49	05:25 21:20
14	08:07 16:56 63	09:49 (1) 07:31 10:52 (2) 17:43 46	10:17 (2) 06:39 11:03 (2) 18:25	06:38 20:09	05:48 20:50	05:25 21:20
15	08:06 16:58 64	09:49 (1) 07:29 10:53 (2) 17:45 45	10:17 (2) 06:37 11:02 (2) 18:27	06:36 20:10	05:47 20:51	05:25 21:21
16	08:05 16:59 64	09:50 (1) 07:28 10:54 (2) 17:46 42	10:19 (2) 06:35 11:01 (2) 18:28	06:34 20:12	05:46 20:53	05:25 21:21
17	08:05 17:01 64	09:51 (1) 07:26 10:55 (2) 17:48 39	10:20 (2) 06:33 10:59 (2) 18:30	06:32 20:13	05:44 20:54	05:25 21:22
18	08:04 17:02 65	09:52 (1) 07:24 10:57 (2) 17:49 36	10:21 (2) 06:31 10:57 (2) 18:31	06:30 20:15	05:43 20:55	05:25 21:22
19	08:03 17:03 65	09:53 (1) 07:23 10:58 (2) 17:51 31	10:23 (2) 06:29 10:54 (2) 18:32	06:28 20:16	05:42 20:56	05:25 21:22
20	08:02 17:05 65	09:54 (1) 07:21 10:59 (2) 17:52 27	10:25 (2) 06:27 10:52 (2) 18:34	06:27 20:17	05:41 20:58	05:25 21:23
21	08:02 17:06 65	09:55 (1) 07:19 11:00 (2) 17:54 20	10:28 (2) 06:25 10:48 (2) 18:35	06:25 20:19	05:40 20:59	05:25 21:23
22	08:01 17:08 65	09:56 (1) 07:17 11:01 (2) 17:56 8	10:33 (2) 06:23 10:41 (2) 18:37	06:23 20:20	05:39 21:00	05:25 21:23
23	08:00 17:09 64	09:58 (1) 07:16 11:02 (2) 17:57	06:21 18:38	06:21 20:22	05:38 21:01	05:26 21:23
24	07:59 17:11 63	10:00 (1) 07:14 11:03 (2) 17:59	06:19 18:40	06:19 20:23	05:37 21:02	05:26 21:23
25	07:58 17:12 62	10:02 (1) 07:12 11:04 (2) 18:00	06:17 18:41	06:18 20:24	05:36 21:03	05:26 21:23
26	07:57 17:14 54	10:06 (1) 07:10 11:04 (2) 18:02	06:15 18:42	06:16 20:26	05:35 21:04	05:27 21:23
27	07:56 17:15 51	10:13 (2) 07:08 11:04 (2) 18:03	06:13 18:44	06:14 20:27	05:34 21:06	05:27 21:23
28	07:55 17:17 52	10:13 (2) 07:07 11:05 (2) 18:05	06:11 18:45	06:12 20:29	05:33 21:07	05:27 21:23
29	07:53 17:18 53	10:13 (2) 11:06 (2)	07:09 19:47	06:11 20:30	05:32 21:08	05:28 21:23
30	07:52 17:20 54	10:13 (2) 11:07 (2)	07:07 19:48	06:09 20:31	05:32 21:09	05:28 21:23
31	07:51 17:21 53	10:13 (2) 11:06 (2)	07:05 19:49	05:31 21:10	05:31 21:10	05:28 21:23
Sonnenscheinstunden	277	287	368	408	468	476
astr. max. mögl. Beschattung	1702	983				
Red. Sonnenscheinwahrsch.	0,21	0,28				
Reduktion Betriebsdauer	0,81	0,81				
Reduktion Windrichtung	0,62	0,62				
Gesamte Reduktion	0,11	0,14				
Met. wahrsch. Beschattung	179	138				

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

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

Berechnung: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: K - Rütweiid 3

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	July	August	September	Oktober	November	Dezember		
1	05:29 21:23	05:59 20:58	06:40 20:05	07:20 19:04	07:05 17:07	09:44 (2) 10:36 (2)	07:48 16:34	09:29 (1) 10:30 (2)
2	05:30 21:23	06:00 20:56	06:41 20:03	07:21 19:02	07:06 17:05	09:44 (2) 10:37 (2)	07:49 16:34	09:29 (1) 10:29 (2)
3	05:30 21:23	06:02 20:55	06:43 20:01	07:23 19:00	07:08 17:04	09:44 (2) 10:37 (2)	07:50 16:33	09:29 (1) 10:28 (2)
4	05:31 21:22	06:03 20:53	06:44 19:59	07:24 18:58	07:09 17:02	09:43 (2) 10:37 (2)	07:51 16:33	09:29 (1) 10:26 (2)
5	05:32 21:22	06:04 20:52	06:45 19:57	07:26 18:56	07:11 17:01	09:43 (2) 10:38 (2)	07:53 16:33	09:30 (1) 10:25 (2)
6	05:32 21:22	06:06 20:50	06:47 19:55	07:27 18:54	07:12 16:59	09:43 (2) 10:37 (2)	07:54 16:32	09:31 (1) 10:23 (2)
7	05:33 21:21	06:07 20:49	06:48 19:53	07:28 18:52	07:14 16:58	09:43 (2) 10:38 (2)	07:55 16:32	09:31 (1) 10:06 (1)
8	05:34 21:21	06:08 20:47	06:49 19:51	07:30 18:50	07:15 16:57	09:44 (2) 10:38 (2)	07:56 16:32	09:31 (1) 10:07 (1)
9	05:35 21:20	06:09 20:46	06:51 19:49	07:31 18:48	07:17 16:55	09:43 (2) 10:38 (2)	07:57 16:32	09:32 (1) 10:07 (1)
10	05:35 21:20	06:11 20:44	06:52 19:47	07:33 18:46	07:18 16:54	09:44 (2) 10:38 (2)	07:58 16:32	09:32 (1) 10:07 (1)
11	05:36 21:19	06:12 20:43	06:53 19:45	07:34 18:44	07:20 16:53	09:44 (2) 10:38 (2)	07:59 16:32	09:33 (1) 10:08 (1)
12	05:37 21:18	06:13 20:41	06:55 19:43	07:35 18:42	07:21 16:51	09:44 (2) 10:38 (2)	08:00 16:32	09:33 (1) 10:08 (1)
13	05:38 21:18	06:15 20:39	06:56 19:41	07:37 18:40	07:23 16:50	09:45 (2) 10:38 (2)	08:01 16:32	09:34 (1) 10:09 (1)
14	05:39 21:17	06:16 20:38	06:57 19:39	07:38 18:38	07:24 16:49	09:45 (2) 10:37 (2)	08:02 16:32	09:34 (1) 10:09 (1)
15	05:40 21:16	06:17 20:36	06:58 19:37	07:40 18:37	07:26 16:48	09:46 (2) 10:37 (2)	08:02 16:32	09:34 (1) 10:09 (1)
16	05:41 21:15	06:19 20:34	07:00 19:34	07:41 18:35	07:27 16:47	09:40 (1) 10:38 (2)	08:03 16:32	09:35 (1) 10:10 (1)
17	05:42 21:14	06:20 20:32	07:01 19:32	07:42 18:33	07:29 16:45	09:35 (1) 10:37 (2)	08:04 16:32	09:36 (1) 10:10 (1)
18	05:43 21:14	06:21 20:31	07:02 19:30	07:44 18:31	07:30 16:44	09:33 (1) 10:37 (2)	08:05 16:33	09:36 (1) 10:11 (1)
19	05:44 21:13	06:23 20:29	07:04 19:28	07:45 18:29	07:31 16:43	09:32 (1) 10:36 (2)	08:05 16:33	09:36 (1) 10:11 (1)
20	05:45 21:12	06:24 20:27	07:05 19:26	07:47 18:27	11:01 (2) 11:14 (2)	07:33 16:42	08:06 16:33	09:37 (1) 10:12 (1)
21	05:46 21:11	06:25 20:25	07:06 19:24	07:48 18:25	10:58 (2) 11:20 (2)	07:34 16:41	08:07 16:34	09:37 (1) 10:12 (1)
22	05:47 21:10	06:27 20:24	07:08 19:22	07:50 18:24	10:54 (2) 11:22 (2)	07:36 16:41	08:07 16:34	09:38 (1) 10:13 (1)
23	05:48 21:09	06:28 20:22	07:09 19:20	07:51 18:22	10:52 (2) 11:25 (2)	07:37 16:40	08:08 16:35	09:38 (1) 10:13 (1)
24	05:50 21:08	06:29 20:20	07:11 19:18	07:53 18:20	10:51 (2) 11:28 (2)	07:39 16:39	08:08 16:35	09:39 (1) 10:14 (1)
25	05:51 21:06	06:31 20:18	07:12 19:16	07:54 17:18	09:49 (2) 10:29 (2)	07:40 16:38	08:08 16:36	09:39 (1) 10:14 (1)
26	05:52 21:05	06:32 20:16	07:13 19:14	07:56 17:17	09:48 (2) 10:31 (2)	07:41 16:37	08:09 16:37	09:39 (1) 10:14 (1)
27	05:53 21:04	06:33 20:14	07:15 19:12	07:57 17:15	09:47 (2) 10:32 (2)	07:43 16:37	08:09 16:37	09:40 (1) 10:14 (1)
28	05:54 21:03	06:35 20:12	07:16 19:10	07:59 17:13	09:46 (2) 10:33 (2)	07:44 16:36	08:09 16:38	09:41 (1) 10:16 (1)
29	05:56 21:02	06:36 20:10	07:17 19:08	08:00 17:12	09:46 (2) 10:34 (2)	07:45 16:35	08:10 16:39	09:41 (1) 10:16 (1)
30	05:57 21:00	06:37 20:08	07:19 19:06	08:02 17:10	09:45 (2) 10:35 (2)	07:47 16:35	08:10 16:40	09:42 (1) 10:17 (1)
31	05:58 20:59	06:39 20:07	07:03 17:08	07:03 10:36 (2)	09:45 (2)	08:10	16:40	09:42 (1) 10:17 (1)
Sonnenscheinstunden	481	442	378	338	281		265	
astr.max.mögl.Beschattung				457	1749		1193	
Red.Sonnenscheinwahrsch.				0,30	0,21		0,19	
Reduktion Betriebsdauer				0,81	0,81		0,81	
Reduktion Windrichtung				0,62	0,62		0,63	
Gesamte Reduktion				0,15	0,11		0,10	
Met.wahrsch.Beschattung				69	190		114	

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

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

Berechnung: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: L - Honegg 2

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:10 16:42	07:50 17:23	07:05 18:06	07:03 19:51	06:07 20:33	05:30 21:11	05:29 21:23	05:59 20:58	06:40 20:05	07:20 19:04	07:05 17:07	07:48 16:34
2	08:10 16:43	07:48 17:24	07:03 18:08	07:01 19:52	06:06 20:34	05:30 21:11	05:30 21:23	06:01 20:56	06:41 20:03	07:21 19:02	07:06 17:05	07:49 16:34
3	08:10 16:44	07:47 17:26	07:01 18:09	06:59 19:54	06:04 20:35	05:29 21:12	05:30 21:22	06:02 20:55	06:43 20:01	07:23 19:00	07:08 17:04	07:50 16:33
4	08:10 16:45	07:46 17:27	06:59 18:11	06:57 19:55	06:03 20:37	05:28 21:13	05:31 21:22	06:03 20:53	06:44 19:59	07:24 18:58	07:09 17:02	07:51 16:33
5	08:10 16:46	07:44 17:29	06:57 18:12	06:55 19:56	06:01 20:38	05:28 21:14	05:32 21:22	06:04 20:52	06:45 19:57	07:26 18:56	07:11 17:01	07:53 16:33
6	08:10 16:47	07:43 17:31	06:55 18:14	06:53 19:58	06:00 20:40	05:27 21:15	05:32 21:21	06:06 20:50	06:47 19:55	07:27 18:54	07:12 16:59	07:54 16:32
7	08:09 16:48	07:42 17:32	06:53 18:15	06:51 19:59	05:58 20:41	05:27 21:16	05:33 21:21	06:07 20:49	06:48 19:53	07:28 18:52	07:14 16:58	07:55 16:32
8	08:09 16:49	07:40 17:34	06:51 18:17	06:49 20:01	05:57 20:42	05:27 21:16	05:34 21:21	06:08 20:47	06:49 19:51	07:30 18:50	07:15 16:57	07:56 16:32
9	08:09 16:50	07:39 17:35	06:49 18:18	06:47 20:02	05:55 20:44	05:26 21:17	05:35 21:20	06:09 20:46	06:51 19:49	07:31 18:48	07:17 16:55	07:57 16:32
10	08:08 16:51	07:37 17:37	06:47 18:19	06:46 20:03	05:54 20:45	05:26 21:18	05:35 21:19	06:11 20:44	06:52 19:47	07:32 18:46	07:18 16:54	07:58 16:32
11	08:08 16:53	07:36 17:38	06:45 18:21	06:44 20:05	05:52 20:46	05:26 21:18	05:36 21:19	06:12 20:43	06:53 19:45	07:34 18:44	07:20 16:53	07:59 16:32
12	08:08 16:54	07:34 17:40	06:43 18:22	06:42 20:06	05:51 20:48	05:25 21:19	05:37 21:18	06:13 20:41	06:55 19:43	07:35 18:42	07:21 16:51	08:00 16:32
13	08:07 16:55	07:33 17:42	06:41 18:24	06:40 20:08	05:50 20:49	05:25 21:20	05:38 21:18	06:15 20:39	06:56 19:41	07:37 18:40	07:23 16:50	08:01 16:32
14	08:07 16:56	07:31 17:43	06:39 18:25	06:38 20:09	05:48 20:50	05:25 21:20	05:39 21:17	06:16 20:38	06:57 19:39	07:38 18:38	07:24 16:49	08:02 16:32
15	08:06 16:58	07:29 17:45	06:37 18:27	06:36 20:10	05:47 20:51	05:25 21:21	05:40 21:16	06:17 20:36	06:58 19:36	07:40 18:37	07:26 16:48	08:02 16:32
16	08:05 16:59	07:28 17:46	06:35 18:28	06:34 20:12	05:46 20:53	05:25 21:21	05:41 21:15	06:19 20:34	07:00 19:34	07:41 18:35	07:27 16:47	08:03 16:32
17	08:05 17:01	07:26 17:48	06:33 18:30	06:32 20:13	05:45 20:54	05:25 21:21	05:42 21:14	06:20 20:32	07:01 19:32	07:42 18:33	07:29 16:46	08:04 16:32
18	08:04 17:02	07:24 17:49	06:31 18:31	06:30 20:15	05:43 20:55	05:25 21:22	05:43 21:14	06:21 20:31	07:02 19:30	07:44 18:31	07:30 16:44	08:05 16:33
19	08:03 17:03	07:23 17:51	06:29 18:32	06:28 20:16	05:42 20:56	05:25 21:22	05:44 21:13	06:23 20:29	07:04 19:28	07:45 18:29	07:31 16:43	08:05 16:33
20	08:02 17:05	07:21 17:52	06:27 18:34	06:27 20:17	05:41 20:58	05:25 21:23	05:45 21:12	06:24 20:27	07:05 19:26	07:47 18:27	07:33 16:42	08:06 16:33
21	08:02 17:06	07:19 17:54	06:25 18:35	06:25 20:19	05:40 20:59	05:25 21:23	05:46 21:11	06:25 20:25	07:06 19:24	07:48 18:25	07:34 16:41	08:07 16:34
22	08:01 17:08	07:17 17:56	06:23 18:37	06:23 20:20	05:39 21:00	05:25 21:23	05:47 21:10	06:27 20:23	07:08 19:22	07:50 18:24	07:36 16:41	08:07 16:34
23	08:00 17:09	07:16 17:57	06:21 18:38	06:21 20:22	05:38 21:01	05:26 21:23	05:48 21:09	06:28 20:22	07:09 19:20	07:51 18:22	07:37 16:40	08:08 16:35
24	07:59 17:11	07:14 17:59	06:19 18:40	06:19 20:23	05:37 21:02	05:26 21:23	05:50 21:07	06:29 20:20	07:11 19:18	07:53 18:20	07:39 16:39	08:08 16:35
25	07:58 17:12	07:12 18:00	06:17 18:41	06:18 20:24	05:36 21:03	05:26 21:23	05:51 21:06	06:31 20:18	07:12 19:16	07:12 17:18	06:54 16:38	08:08 16:36
26	07:57 17:14	07:10 18:02	06:15 18:42	06:16 20:26	05:35 21:04	05:27 21:23	05:52 21:05	06:32 20:16	07:13 19:14	06:56 17:17	07:41 16:37	08:09 16:37
27	07:56 17:15	07:08 18:03	06:13 18:44	06:14 20:27	05:34 21:05	05:27 21:23	05:53 21:04	06:33 20:14	07:15 19:12	06:57 17:15	07:43 16:37	08:09 16:37
28	07:55 17:17	07:07 18:05	06:11 18:45	06:12 20:29	05:33 21:07	05:27 21:23	05:54 21:03	06:35 20:12	07:16 19:10	06:59 17:13	07:44 16:36	08:09 16:38
29	07:53 17:18	07:09 19:47	06:11 20:30	06:11 21:08	05:32 21:08	05:28 21:23	05:56 21:02	06:36 20:10	07:17 19:08	07:00 17:12	07:45 16:35	08:10 16:39
30	07:52 17:20	07:07 19:48	06:09 20:31	06:09 21:09	05:32 21:09	05:28 21:23	05:57 21:00	06:37 20:08	07:19 19:06	07:02 17:10	07:47 16:35	08:10 16:40
31	07:51 17:21	07:05 19:49	06:07 20:31	06:07 21:10	05:31 21:10	05:28 20:59	05:58 20:07	06:39 20:07	07:03 17:09	07:03 17:09	07:03 16:40	08:10 16:40
Sonnenscheinstunden	277	287	368	408	468	476	481	442	378	338	281	265
astr. max. mögl. Beschattung												
Red. Sonnenscheinwahrsch.												
Reduktion Betriebsdauer												
Reduktion Windrichtung												
Gesamte Reduktion												
Met. wahrsch. 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: 241_16_702_Schatten_Oberfeld
Annahmen für Schattenwurfberechnung

Schattenrezeptor: M - Honegg 3

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:10 16:42	07:50 17:23	07:05 18:06	07:03 19:51	06:07 20:33	05:30 21:11	05:29 21:23	05:59 20:58	06:40 20:05	07:20 19:04	07:05 17:07	07:48 16:34
2	08:10 16:43	07:48 17:24	07:03 18:08	07:01 19:52	06:06 20:34	05:30 21:11	05:30 21:23	06:01 20:56	06:41 20:03	07:21 19:02	07:06 17:05	07:49 16:34
3	08:10 16:44	07:47 17:26	07:01 18:09	06:59 19:54	06:04 20:35	05:29 21:12	05:30 21:22	06:02 20:55	06:43 20:01	07:23 19:00	07:08 17:04	07:50 16:33
4	08:10 16:45	07:46 17:28	06:59 18:11	06:57 19:55	06:03 20:37	05:28 21:13	05:31 21:22	06:03 20:53	06:44 19:59	07:24 18:58	07:09 17:02	07:51 16:33
5	08:10 16:46	07:44 17:29	06:57 18:12	06:55 19:56	06:01 20:38	05:28 21:14	05:32 21:22	06:04 20:52	06:45 19:57	07:26 18:56	07:11 17:01	07:53 16:33
6	08:10 16:47	07:43 17:31	06:55 18:14	06:53 19:58	06:00 20:40	05:27 21:15	05:32 21:21	06:06 20:50	06:47 19:55	07:27 18:54	07:12 16:59	07:54 16:32
7	08:09 16:48	07:42 17:32	06:53 18:15	06:51 19:59	05:58 20:41	05:27 21:16	05:33 21:21	06:07 20:49	06:48 19:53	07:28 18:52	07:14 16:58	07:55 16:32
8	08:09 16:49	07:40 17:34	06:51 18:17	06:49 20:01	05:57 20:42	05:27 21:16	05:34 21:21	06:08 20:47	06:49 19:51	07:30 18:50	07:15 16:57	07:56 16:32
9	08:09 16:50	07:39 17:35	06:49 18:18	06:47 20:02	05:55 20:44	05:26 21:17	05:35 21:20	06:09 20:46	06:51 19:49	07:31 18:48	07:17 16:55	07:57 16:32
10	08:08 16:51	07:37 17:37	06:47 18:19	06:46 20:03	05:54 20:45	05:26 21:18	05:35 21:19	06:11 20:44	06:52 19:47	07:33 18:46	07:18 16:54	07:58 16:32
11	08:08 16:53	07:36 17:38	06:45 18:21	06:44 20:05	05:52 20:46	05:26 21:18	05:36 21:19	06:12 20:43	06:53 19:45	07:34 18:44	07:20 16:53	07:59 16:32
12	08:08 16:54	07:34 17:40	06:43 18:22	06:42 20:06	05:51 20:48	05:25 21:19	05:37 21:18	06:13 20:41	06:55 19:43	07:35 18:42	07:21 16:51	08:00 16:32
13	08:07 16:55	07:33 17:42	06:41 18:24	06:40 20:08	05:50 20:49	05:25 21:20	05:38 21:18	06:15 20:39	06:56 19:41	07:37 18:40	07:23 16:50	08:01 16:32
14	08:07 16:57	07:31 17:43	06:39 18:25	06:38 20:09	05:48 20:50	05:25 21:20	05:39 21:17	06:16 20:38	06:57 19:39	07:38 18:38	07:24 16:49	08:02 16:32
15	08:06 16:58	07:29 17:45	06:37 18:27	06:36 20:10	05:47 20:51	05:25 21:21	05:40 21:16	06:17 20:36	06:58 19:37	07:40 18:37	07:26 16:48	08:02 16:32
16	08:05 16:59	07:28 17:46	06:35 18:28	06:34 20:12	05:46 20:53	05:25 21:21	05:41 21:15	06:19 20:34	07:00 19:34	07:41 18:35	07:27 16:47	08:03 16:32
17	08:05 17:01	07:26 17:48	06:33 18:30	06:32 20:13	05:45 20:54	05:25 21:22	05:42 21:14	06:20 20:32	07:01 19:32	07:42 18:33	07:29 16:46	08:04 16:32
18	08:04 17:02	07:24 17:49	06:31 18:31	06:30 20:15	05:43 20:55	05:25 21:22	05:43 21:14	06:21 20:31	07:02 19:30	07:44 18:31	07:30 16:44	08:05 16:33
19	08:03 17:03	07:23 17:51	06:29 18:32	06:28 20:16	05:42 20:56	05:25 21:22	05:44 21:13	06:23 20:29	07:04 19:28	07:45 18:29	07:31 16:43	08:05 16:33
20	08:02 17:05	07:21 17:52	06:27 18:34	06:27 20:17	05:41 20:58	05:25 21:23	05:45 21:12	06:24 20:27	07:05 19:26	07:47 18:27	07:33 16:42	08:06 16:33
21	08:02 17:06	07:19 17:54	06:25 18:35	06:25 20:19	05:40 20:59	05:25 21:23	05:46 21:11	06:25 20:25	07:06 19:24	07:48 18:25	07:34 16:42	08:07 16:34
22	08:01 17:08	07:17 17:56	06:23 18:37	06:23 20:20	05:39 21:00	05:26 21:23	05:47 21:10	06:27 20:24	07:08 19:22	07:50 18:24	07:36 16:41	08:07 16:34
23	08:00 17:09	07:16 17:57	06:21 18:38	06:21 20:22	05:38 21:01	05:26 21:23	05:48 21:09	06:28 20:22	07:09 19:20	07:51 18:22	07:37 16:40	08:08 16:35
24	07:59 17:11	07:14 17:59	06:19 18:40	06:19 20:23	05:37 21:02	05:26 21:23	05:50 21:07	06:29 20:20	07:11 19:18	07:53 18:20	07:39 16:39	08:08 16:35
25	07:58 17:12	07:12 18:00	06:17 18:41	06:17 20:24	05:36 21:03	05:26 21:23	05:51 21:06	06:31 20:18	07:12 19:16	07:12 17:18	06:54 16:38	08:08 16:36
26	07:57 17:14	07:10 18:02	06:15 18:42	06:16 20:26	05:35 21:04	05:27 21:23	05:52 21:05	06:32 20:16	07:13 19:14	06:56 17:17	07:41 16:37	08:09 16:37
27	07:56 17:15	07:08 18:03	06:13 18:44	06:14 20:27	05:34 21:05	05:27 21:23	05:53 21:04	06:33 20:14	07:15 19:12	06:57 17:15	07:43 16:37	08:09 16:37
28	07:55 17:17	07:07 18:05	06:11 18:45	06:12 20:29	05:33 21:07	05:28 21:23	05:54 21:03	06:35 20:12	07:16 19:10	06:59 17:13	07:44 16:36	08:09 16:38
29	07:53 17:18	07:09 19:47	06:11 20:30	06:11 20:30	05:32 21:08	05:28 21:23	05:56 21:02	06:36 20:10	07:17 19:08	07:00 17:12	07:45 16:35	08:10 16:39
30	07:52 17:20	07:07 19:48	06:09 20:31	06:09 20:31	05:32 21:09	05:28 21:23	05:57 21:00	06:37 20:08	07:19 19:06	07:02 17:10	07:47 16:35	08:10 16:40
31	07:51 17:21	07:05 19:49	06:07 20:31	06:07 20:31	05:31 21:10	05:28 21:23	05:58 20:59	06:39 20:07	07:03 17:09	07:03 17:09	07:03 16:40	08:10 16:40
Sonnenscheinstunden	277	287	368	408	468	476	481	442	378	338	281	265
astr.max.mögl.Beschattung												
Red.Sonnenscheinwahrsch.												
Reduktion Betriebsdauer												
Reduktion Windrichtung												
Gesamte Reduktion												
Met.wahrsch.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: 241_16_702_Schatten_Oberfeld Annahmen für Schattenwurfberechnung

Schattenrezeptor: N - Honegg 4

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []

Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez 1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe 395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128 Startwindgeschwindigkeit 2,5m/s

Calendar grid with columns for months (Januar to Dezember) and rows for each day (1 to 31). Includes summary rows for 'Sonnenscheinstunden' and 'Reduktion'.

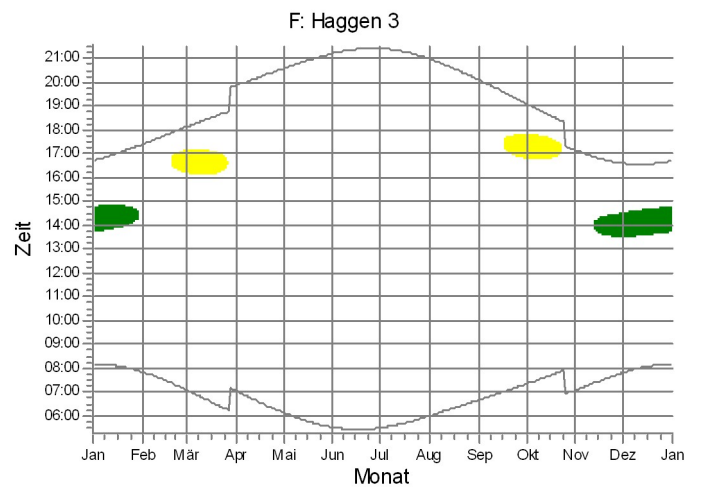
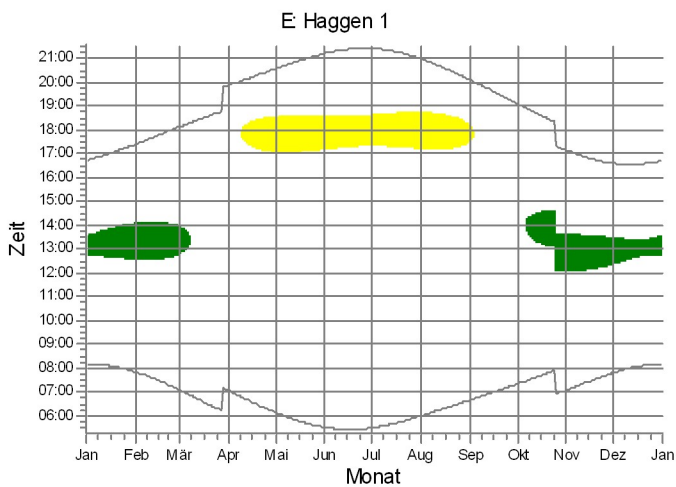
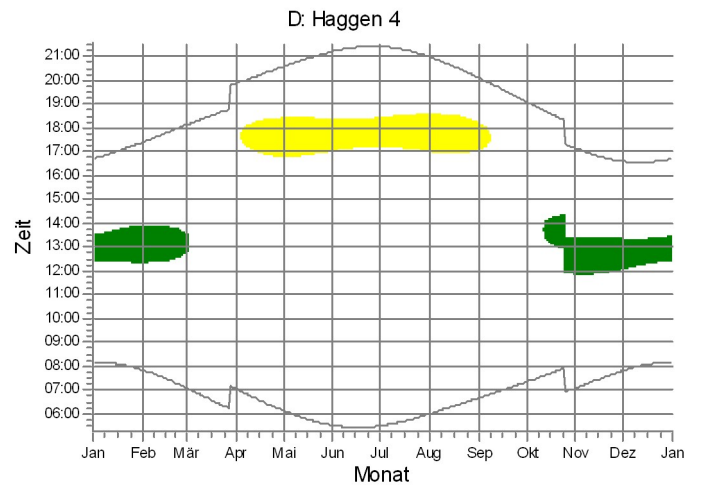
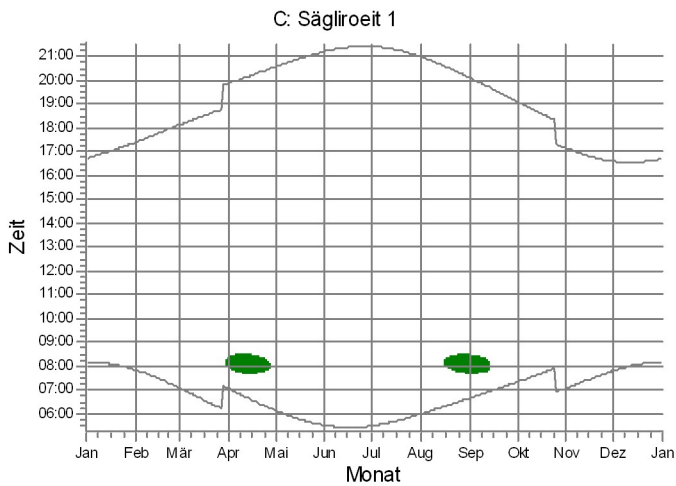
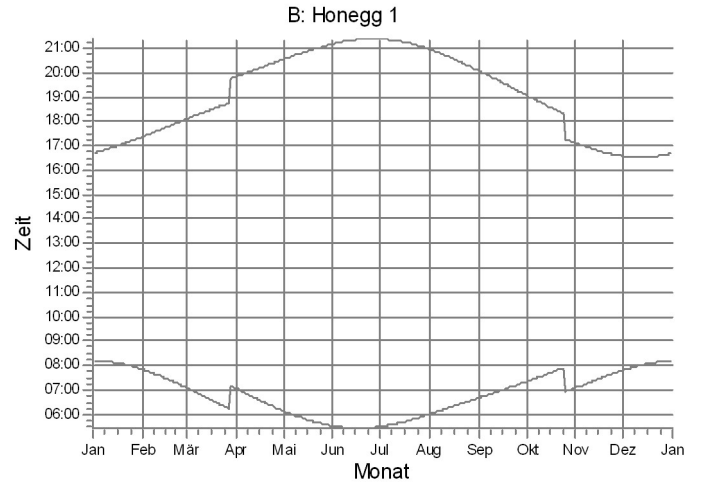
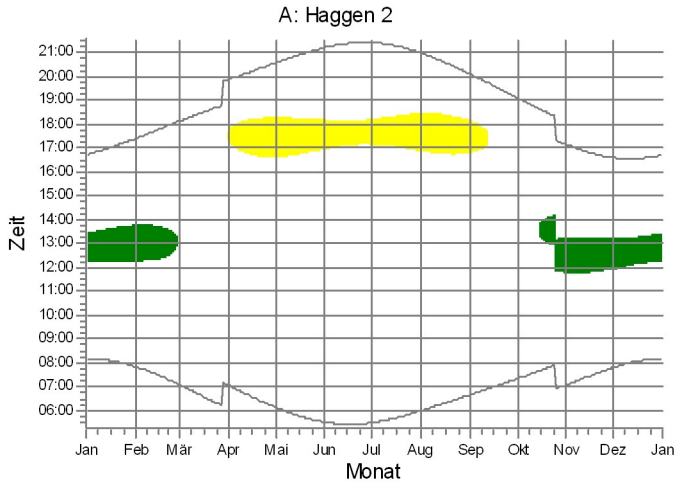
Tabellen-Layout: Die Daten für jeden Tag sind in folgender Matrix wiedergegeben (Sommerzeit wie Bezugsjahr):

Summary table with columns: Tag im Monat, Sonnenaufgang (SS:MM), Sonnenuntergang (SS:MM), Minuten mit Schatten, Zeitpunkt (SS:MM) Schattenanfang, Zeitpunkt (SS:MM) Schatteneende, (WEA mit erstem Schatten), (WEA mit letztem Schatten)



SHADOW - Grafischer Kalender

Berechnung: 241_16_702_Schatten_Oberfeld



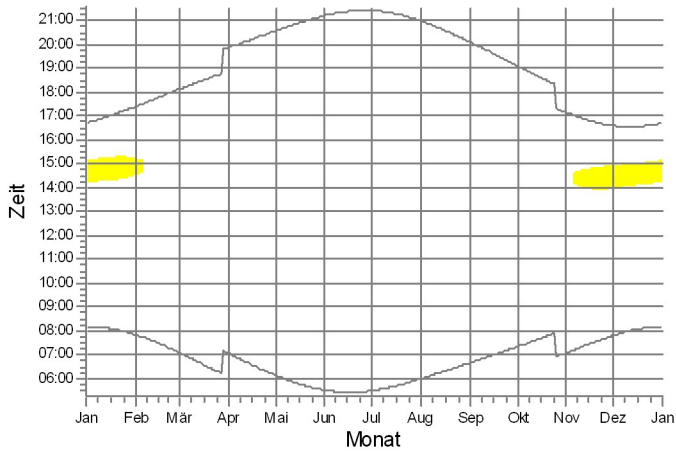
WEA

1: WEA 1 2: WEA 2

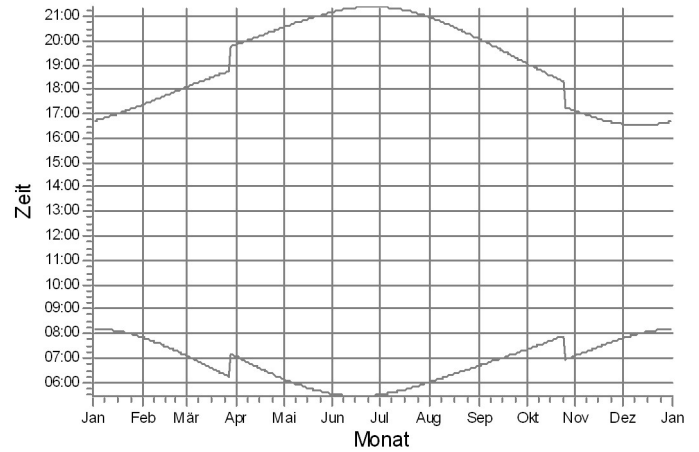
SHADOW - Grafischer Kalender

Berechnung: 241_16_702_Schatten_Oberfeld

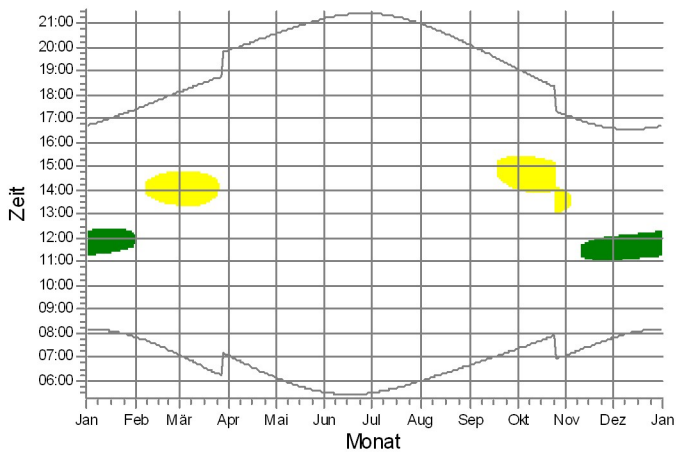
G: Erbskraut 1



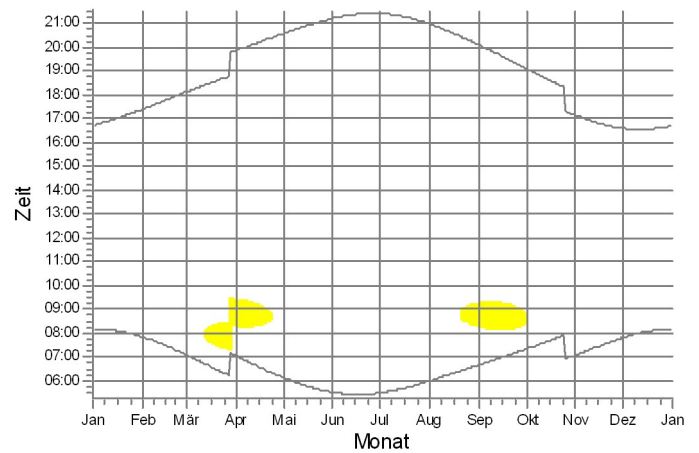
H: Rütwi eid 1



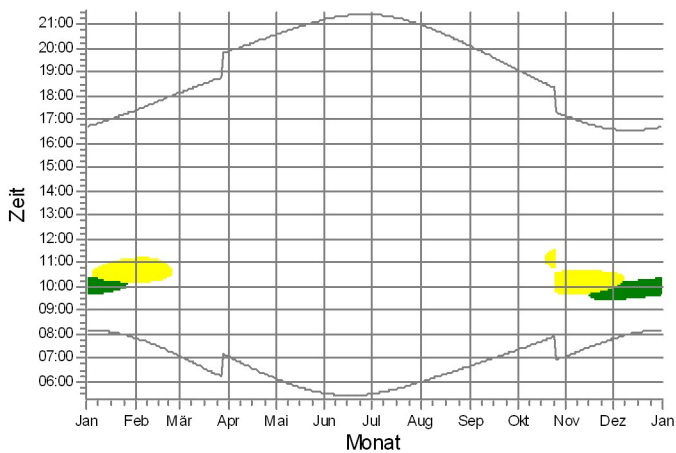
I: Rütwi eid 2



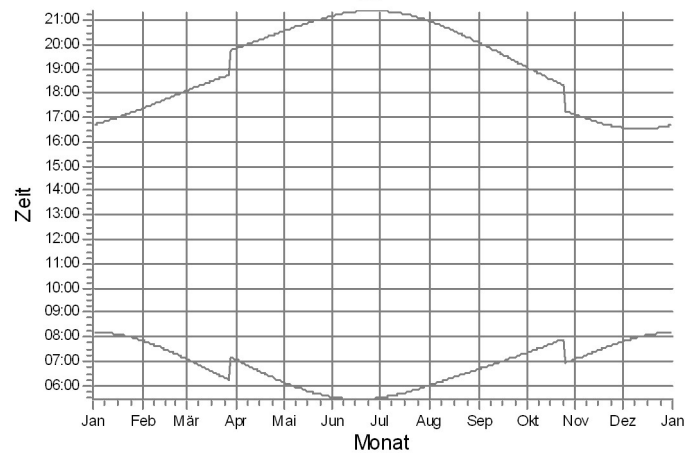
J: Chozeren 1



K: Rütwi eid 3



L: Honegg 2

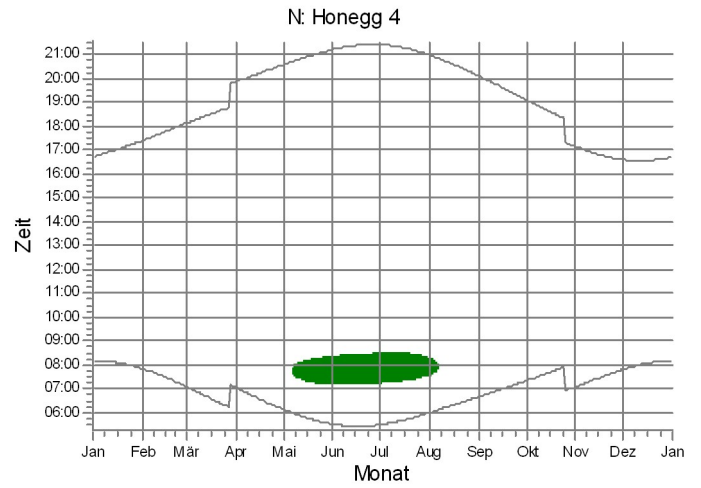
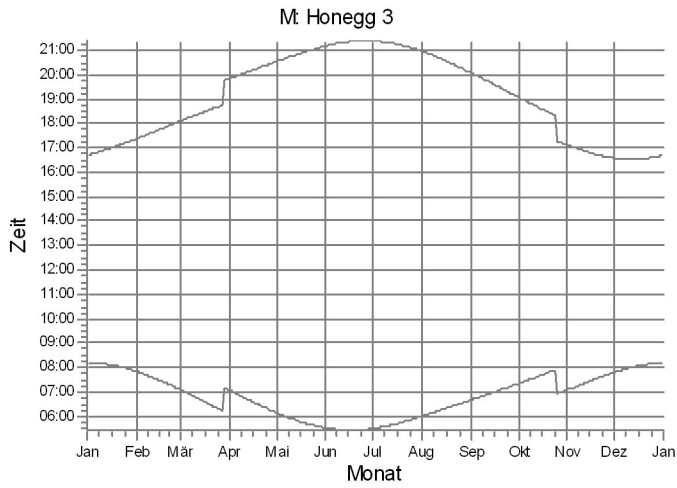


WEA

1: WEA 1 2: WEA 2

SHADOW - Grafischer Kalender

Berechnung: 241_16_702_Schatten_Oberfeld



WEA



1: WEA 1

SHADOW - Kalender pro WEA

Berechnung: 241_16_702_Schatten_Oberfeld WEA: 1 - WEA 1
Annahmen für Schattenwurfberechnung

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni
1	08:10 09:43-10:18/35 13:47-14:42/55	07:50 12:19-14:01/102	07:05 12:52-13:51/59	07:03 08:01-08:19/18	06:07	05:30 07:13-08:18/65
	16:42 11:20-12:12/52 12:18-13:30/72	17:23	18:06	19:51	20:33	21:11
2	08:10 09:43-10:18/35 13:48-14:43/55	07:48 12:18-14:00/102	07:03 12:54-13:49/55	07:01 07:58-08:21/23	06:06	05:30 07:14-08:19/65
	16:43 11:20-12:13/53 12:18-13:31/73	17:24	18:08	19:52	20:34	21:11
3	08:10 09:43-10:18/35 13:48-14:42/54	07:47 12:19-14:01/102	07:01 12:57-13:46/49	06:59 07:56-08:22/26	06:04	05:29 07:13-08:19/66
	16:44 11:20-12:13/53 12:18-13:31/73	17:26	18:09	19:54	20:35	21:12
4	08:10 09:43-10:18/35 13:49-14:43/54	07:46 12:20-14:02/102	06:59 13:01-13:43/42	06:57 07:54-08:23/29	06:03	05:28 07:13-08:19/66
	16:45 11:21-12:13/52 12:18-13:33/75	17:27	18:11	19:55	20:37	21:13
5	08:10 09:44-10:19/35 13:49-14:43/54	07:44 12:19-14:02/103	06:57 13:07-13:38/31	06:55 07:52-08:24/32	06:01	05:28 07:13-08:19/66
	16:46 11:21-12:14/53 12:18-13:34/76	17:29	18:12	19:56	20:38	21:14
6	08:10 09:45-10:20/35 13:50-14:44/54	07:43 12:20-14:03/103	06:55 13:16-13:31/15	06:53 07:51-08:25/34	06:00	05:27 07:13-08:20/67
	16:47 11:22-12:15/53 12:19-13:35/76	17:31	18:14	19:58	20:40	21:15
7	08:09 09:45-10:20/35 13:50-14:43/53	07:42 12:20-14:03/103	06:53	06:51 07:50-08:25/35	05:58	05:27 07:13-08:19/66
	16:48 11:22-12:14/52 12:18-13:36/78	17:32	18:15	19:59	20:41	21:16
8	08:09 09:45-10:20/35 13:51-14:44/53	07:40 12:21-14:03/102	06:51	06:49 07:49-08:25/36	05:57 07:40-07:51/11	05:27 07:13-08:20/67
	16:49 11:23-12:15/52 12:18-13:38/80	17:34	18:17	20:01	20:42	21:16
9	08:09 09:46-10:21/35 13:51-14:44/53	07:39 12:21-14:03/102	06:49	06:47 07:48-08:25/37	05:55 07:35-07:56/21	05:26 07:13-08:21/68
	16:50 11:24-12:16/52 12:18-13:38/80	17:35	18:18	20:02	20:44	21:17
10	08:08 09:46-10:21/35 13:52-14:44/52	07:37 12:22-14:04/102	06:47	06:45 07:47-08:25/38	05:54 07:31-07:58/27	05:26 07:14-08:21/67
	16:51 11:24-12:16/52 12:18-13:40/82	17:37	18:19	20:03	20:45	21:18
11	08:08 09:47-10:22/35 13:53-14:44/51	07:36 12:22-14:03/101	06:45	06:44 07:46-08:25/39	05:52 07:29-08:01/32	05:26 07:13-08:21/68
	16:53 11:24-12:15/51 12:18-13:41/83	17:38	18:21	20:05	20:46	21:18
12	08:08 09:48-10:21/33 13:54-14:45/51	07:34 12:22-14:03/101	06:43	06:42 07:46-08:25/39	05:51 07:28-08:03/35	05:25 07:13-08:21/68
	16:54 11:25-12:16/51 12:18-13:42/84	17:40	18:22	20:06	20:48	21:19
13	08:07 09:48-10:21/33 13:54-14:44/50	07:33 12:23-14:04/101	06:41	06:40 07:47-08:25/38	05:50 07:26-08:05/39	05:25 07:13-08:21/68
	16:55 11:25-12:16/51 12:18-13:43/85	17:42	18:24	20:08	20:49	21:20
14	08:07 09:49-10:22/33 13:56-14:45/49	07:31 12:24-14:03/99	06:39	06:38 07:46-08:25/39	05:48 07:24-08:05/41	05:25 07:14-08:22/68
	16:56 11:26-12:17/51 12:19-13:45/86	17:43	18:25	20:09	20:50	21:20
15	08:06 09:49-10:22/33 13:56-14:45/49	07:29 12:24-14:03/99	06:37	06:36 07:46-08:24/38	05:47 07:23-08:07/44	05:25 07:14-08:22/68
	16:58 11:26-12:17/51 12:18-13:46/88	17:45	18:27	20:10	20:51	21:21
16	08:05 09:50-10:21/31 13:57-14:44/47	07:28 12:26-14:03/97	06:35	06:34 07:46-08:23/37	05:46 07:22-08:08/46	05:25 07:14-08:22/68
	16:59 11:27-12:17/50 12:18-13:47/89	17:46	18:28	20:12	20:53	21:21
17	08:05 09:51-10:21/30 13:58-14:44/46	07:26 12:27-14:02/95	06:33	06:32 07:46-08:22/36	05:44 07:21-08:09/48	05:25 07:14-08:22/68
	17:01 11:27-12:16/49 12:18-13:48/90	17:48	18:30	20:13	20:54	21:21
18	08:04 09:52-10:22/30 13:59-14:44/45	07:24 12:28-14:02/94	06:31	06:30 07:46-08:21/35	05:43 07:20-08:10/50	05:25 07:14-08:22/68
	17:02 11:29-12:17/48 12:18-13:49/91	17:49	18:31	20:15	20:55	21:22
19	08:03 09:53-10:21/28 14:01-14:44/43	07:23 12:29-14:01/92	06:29	06:28 07:47-08:20/33	05:42 07:19-08:11/52	05:25 07:14-08:23/69
	17:03 11:29-12:17/48 12:18-13:50/92	17:51	18:32	20:16	20:56	21:22
20	08:02 09:54-10:21/27 14:02-14:44/42	07:21 12:31-14:01/90	06:27	06:27 07:48-08:19/31	05:41 07:18-08:12/54	05:25 07:14-08:23/69
	17:05 11:30-12:17/47 12:18-13:51/93	17:52	18:34	20:17	20:58	21:22
21	08:01 09:55-10:20/25 14:03-14:43/40	07:19 12:33-14:00/87	06:25	06:25 07:49-08:17/28	05:40 07:18-08:13/55	05:25 07:15-08:24/69
	17:06 11:31-12:16/45 12:18-13:52/94	17:54	18:35	20:19	20:59	21:23
22	08:01 09:56-10:19/23 14:04-14:43/39	07:17 12:35-14:00/85	06:23	06:23 07:49-08:16/27	05:39 07:17-08:14/57	05:25 07:15-08-24/69
	17:08 11:32-12:16/44 12:18-13:53/95	17:55	18:37	20:20	21:00	21:23
23	08:00 09:58-10:18/20 14:06-14:42/36	07:16 12:36-13:59/83	06:21	06:21 07:50-08:14/24	05:38 07:16-08:14/58	05:26 07:15-08-24/69
	17:09 11:33-12:16/43 12:18-13:54/96	17:57	18:38	20:22	21:01	21:23
24	07:59 10:00-10:16/16 14:08-14:41/33	07:14 12:38-13:57/79	06:19	06:19 07:53-08:12/19	05:37 07:16-08:15/59	05:26 07:15-08-24/69
	17:11 11:34-12:15/41 12:18-13:55/97	17:59	18:40	20:23	21:02	21:23
25	07:58 10:02-10:14/12 14:10-14:40/30	07:12 12:40-13:56/76	06:17	06:18 07:55-08:09/14	05:36 07:15-08:15/60	05:26 07:16-08-24/68
	17:12 11:35-12:14/39 12:18-13:56/98	18:00	18:41	20:24	21:03	21:23
26	07:57 10:06-10:09/3 14:12-14:38/26	07:10 12:44-13:56/72	06:15	06:16 07:59-08:04/5	05:35 07:14-08:15/61	05:27 07:16-08-24/68
	17:14 11:35-12:13/38 12:18-13:56/98	18:02	18:42	20:26	21:04	21:23
27	07:56 11:37-12:12/35 12:18-13:57/99	07:08 12:47-13:54/67	06:13	06:14	05:34 07:14-08:16/62	05:27 07:17-08-25/68
	17:15 14:15-14:36/21	18:03	18:44	20:27	21:05	21:23
28	07:55 11:39-12:10/31 12:18-13:58/100	07:07 12:49-13:53/64	06:11	06:12	05:33 07:14-08:17/63	05:27 07:17-08-25/68
	17:17 14:19-14:33/14	18:05	18:45	20:29	21:07	21:23
29	07:53 11:41-12:09/28		07:09	06:11	05:32 07:14-08:17/63	05:28 07:17-08-24/67
	17:18 12:18-13:59/101		19:47	20:30	21:08	21:23
30	07:52 11:43-12:06/23		07:07	06:09	05:32 07:13-08:17/64	05:28 07:17-08-25/68
	17:20 12:18-13:59/101		19:48	20:31	21:09	21:23
31	07:51 11:47-12:02/15		07:05 08:05-08:15/10		05:31 07:14-08:18/64	
	17:21 12:18-14:00/102		19:49		21:10	
Sonnenscheinstunden	277	287	368	408	468	476
Anzahl Minuten mit Schatten	6141	2605	261	790	1166	2028

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: 241_16_702_Schatten_Oberfeld WEA: 1 - WEA 1
Annahmen für Schattenwurfberechnung

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

	July	August	September	Oktober	November	Dezember
1	05:29 07:18-08:26/68	05:59 07:39-08:13/34	06:40 07:45-08:24/39	07:20	07:05 11:50-13:32/102	07:48 09:29-10:04/35 13:35-14:26/51
	21:23	20:58	20:05	19:04	17:07	16:34 11:06-11:58/52 12:00-13:23/83
2	05:30 07:18-08:25/67	06:00 07:41-08:11/30	06:41 07:46-08:24/38	07:21	07:06 11:50-13:33/103	07:49 09:29-10:04/35 13:36-14:27/51
	21:23	20:56	20:03	19:02	17:05	16:34 11:07-11:59/52 12:01-13:23/82
3	05:30 07:18-08:26/68	06:02 07:43-08:08/25	06:43 07:46-08:23/37	07:23	07:08 11:50-13:33/103	07:50 09:29-10:04/35 13:35-14:28/53
	21:22	20:55	20:01	19:00	17:04	16:33 11:07-11:59/52 12:02-13:22/80
4	05:31 07:18-08:25/67	06:03 07:46-08:04/18	06:44 07:46-08:22/36	07:24	07:09 11:50-13:32/102	07:51 09:29-10:04/35 13:35-14:28/53
	21:22	20:53	19:59	18:58	17:02	16:33 11:07-11:59/52 12:02-13:22/80
5	05:32 07:19-08:26/67	06:04 07:53-07:57/4	06:45 07:47-08:22/35	07:26	07:11 11:50-13:33/103	07:53 09:30-10:05/35 13:35-14:29/54
	21:22	20:52	19:57	18:56	17:01	16:33 11:07-11:59/52 12:03-13:21/78
6	05:32 07:19-08:26/67	06:06	06:47 07:47-08:21/34	07:27	07:12 11:49-13:32/103	07:54 09:31-10:06/35 13:36-14:30/54
	21:21	20:50	19:55	18:54	16:59	16:32 11:08-12:01/53 12:05-13:22/77
7	05:33 07:19-08:25/66	06:07	06:48 07:47-08:19/32	07:28	07:14 11:49-13:32/103	07:55 09:31-10:06/35 13:36-14:30/54
	21:21	20:49	19:53	18:52	16:58	16:32 11:08-12:01/53 12:05-13:21/76
8	05:34 07:20-08:26/66	06:08	06:49 07:48-08:17/29	07:30 13:47-14:11/24	07:15 11:50-13:32/102	07:56 09:31-10:07/36 13:37-14:31/54
	21:21	20:47	19:51	18:50	16:57	16:32 11:09-12:01/52 12:06-13:21/75
9	05:35 07:20-08:26/66	06:09	06:51 07:50-08:16/26	07:31 13:39-14:15/36	07:17 11:49-13:31/102	07:57 09:32-10:07/35 13:37-14:31/54
	21:20	20:46	19:49	18:48	16:55	16:32 11:09-12:02/53 12:07-13:20/73
10	05:35 07:21-08:26/65	06:11	06:52 07:51-08:14/23	07:32 13:33-14:18/45	07:18 11:50-13:31/101	07:58 09:32-10:07/35 13:37-14:32/55
	21:19	20:44	19:47	18:46	16:54	16:32 11:09-12:02/53 12:07-13:20/73
11	05:36 07:21-08:26/65	06:12	06:53 07:52-08:11/19	07:34 13:30-14:21/51	07:20 11:18-11:34/16	07:59 09:33-10:08/35 13:38-14:32/54
	21:19	20:43	19:45	18:44	16:53 11:49-13:31/102	16:32 11:10-12:02/52 12:08-13:20/72
12	05:37 07:22-08:26/64	06:13	06:54 07:55-08:07/12	07:35 13:26-14:23/57	07:21 11:15-11:38/23	08:00 09:33-10:08/35 13:38-14:33/55
	21:18	20:41	19:43	18:42	16:51 11:50-13:31/101	16:32 11:10-12:03/53 12:09-13:20/71
13	05:38 07:21-08:25/64	06:15	06:56	07:37 13:24-14:25/61	07:23 11:13-11:41/28	08:01 09:34-10:09/35 13:38-14:33/55
	21:18	20:39	19:41	18:40	16:50 11:50-13:31/101	16:32 11:11-12:03/52 12:10-13:19/69
14	05:39 07:22-08:25/63	06:16	06:57	07:38 13:21-14:26/65	07:24 11:11-11:42/31 11:50-13:30/100	08:02 09:34-10:09/35 13:39-14:34/55
	21:17	20:38	19:39	18:38	16:49 13:51-14:05/14	16:32 11:12-12:04/52 12:11-13:19/68
15	05:40 07:23-08:25/62	06:17	06:58	07:40 13:18-14:27/69	07:26 11:10-11:45/35 11:51-13:30/99	08:02 09:34-10:09/35 13:39-14:34/55
	21:16	20:36	19:36	18:36	16:48 13:48-14:09/21	16:32 11:11-12:04/53 12:11-13:19/68
16	05:41 07:23-08:25/62	06:19	07:01	07:41 13:14-14:28/74	07:27 09:40-09:43/3 13:44-14:11/27	08:03 09:35-10:10/35 13:39-14:35/56
	21:15	20:34	19:34	18:35	16:47 11:08-11:46/38 11:51-13:29/98	16:32 11:12-12:04/52 12:11-13:19/68
17	05:42 07:24-08:25/61	06:20 08:04-08:12/8	07:01	07:42 13:12-14:29/77	07:29 09:35-09:47/12 13:43-14:13/30	08:04 09:36-10:10/34 13:40-14:35/55
	21:14	20:32	19:32	18:33	16:45 11:08-11:47/39 11:51-13:29/98	16:32 11:13-12:05/52 12:12-13:19/67
18	05:43 07:24-08:25/61	06:21 08:01-08:16/15	07:02	07:44 13:09-14:29/80	07:30 09:33-09:50/17 13:42-14:15/33	08:05 09:36-10:11/35 13:40-14:35/55
	21:14	20:31	19:30	18:31	16:44 11:08-11:49/41 11:52-13:29/97	16:33 11:14-12:06/52 12:12-13:19/67
19	05:44 07:25-08:24/59	06:23 07:58-08:18/20	07:04	07:45 13:07-14:30/83	07:31 09:32-09:52/20 13:40-14:16/36	08:05 09:36-10:11/35 13:41-14:36/55
	21:13	20:29	19:28	18:29	16:43 11:07-11:50/43 11:52-13:28/96	16:33 11:13-12:06/53 12:13-13:19/66
20	05:45 07:26-08:24/58	06:24 07:56-08:20/24	07:05	07:47 13:05-14:30/85	07:33 09:31-09:54/23 13:39-14:18/39	08:06 09:37-10:12/35 13:41-14:37/56
	21:12	20:27	19:26	18:27	16:42 11:07-11:51/44 11:53-13:28/95	16:33 11:14-12:07/53 12:14-13:20/66
21	05:46 07:26-08:23/57	06:25 07:54-08:21/27	07:06	07:48 13:03-14:31/88	07:34 09:30-09:55/25 13:38-14:18/40	08:07 09:37-10:12/35 13:41-14:37/56
	21:11	20:25	19:24	18:25	16:41 11:06-11:51/45 11:53-13:27/94	16:34 11:14-12:07/53 12:14-13:20/66
22	05:47 07:27-08:23/56	06:27 07:53-08:22/29	07:08	07:50 13:00-14:31/91	07:36 09:30-09:57/27 13:38-14:20/42	08:07 09:38-10:13/35 13:42-14:38/56
	21:10	20:23	19:22	18:24	16:41 11:06-11:53/47 11:54-13:27/93	16:34 11:15-12:08/53 12:15-13:21/66
23	05:48 07:28-08:22/54	06:28 07:52-08:23/31	07:09	07:51 12:59-14:32/93	07:37 09:29-09:57/28 13:37-14:20/43	08:08 09:38-10:13/35 13:42-14:38/56
	21:09	20:22	19:20	18:22	16:40 11:05-11:53/48 11:54-13:26/92	16:35 11:15-12:08/53 12:15-13:21/66
24	05:50 07:28-08:21/53	06:29 07:50-08:24/34	07:10	07:53 12:58-14:32/94	07:39 09:29-09:59/30 13:37-14:22/45	08:08 09:39-10:14/35 13:43-14:38/55
	21:07	20:20	19:18	18:20	16:39 11:06-11:54/48 11:56-13:27/91	16:35 11:15-12:08/53 12:15-13:21/66
25	05:51 07:30-08:21/51	06:31 07:50-08:25/35	07:12	06:54 11:56-13:32/96	07:40 09:29-09:59/30 13:36-14:22/46	08:08 09:39-10:14/35 13:44-14:39/55
	21:06	20:18	19:16	17:18	16:38 11:05-11:55/50 11:56-13:26/90	16:36 11:16-12:09/53 12:16-13:22/66
26	05:52 07:31-08:20/49	06:32 07:49-08:25/36	07:13	06:56 11:55-13:33/98	07:41 09:29-10:00/31 13:36-14:23/47	08:09 09:39-10:14/35 13:44-14:39/55
	21:05	20:16	19:14	17:17	16:37 11:06-11:56/50 11:57-13:26/89	16:37 11:17-12:09/52 12:16-13:23/67
27	05:53 07:32-08:19/47	06:33 07:48-08:25/37	07:15	06:57 11:54-13:32/98	07:43 09:29-10:01/32 13:35-14:24/49	08:09 09:40-10:14/34 13:44-14:39/55
	21:04	20:14	19:12	17:15	16:37 11:06-11:56/50 11:57-13:25/88	16:37 11:17-12:09/52 12:16-13:23/67
28	05:54 07:33-08:18/45	06:35 07:47-08:25/38	07:16	06:59 11:53-13:33/100	07:44 09:28-10:01/33 13:35-14:24/49	08:09 09:41-10:16/35 13:44-14:40/56
	21:03	20:12	19:10	17:13	16:36 11:05-11:56/51 11:58-13:24/86	16:38 11:17-12:10/53 12:16-13:24/68
29	05:56 07:34-08:17/43	06:36 07:47-08:26/39	07:17	07:00 11:52-13:32/100	07:45 09:29-10:02/33 13:35-14:25/50	08:10 09:41-10:16/35 13:46-14:41/55
	21:01	20:10	19:08	17:12	16:35 11:06-11:57/51 11:59-13:24/85	16:39 11:18-12:11/53 12:18-13:26/68
30	05:57 07:35-08:15/40	06:37 07:46-08:25/39	07:19	07:02 11:52-13:33/101	07:47 09:29-10:02/33 13:35-14:26/51	08:10 09:42-10:17/35 13:46-14:41/55
	21:00	20:08	19:06	17:10	16:35 11:06-11:57/51 11:59-13:24/85	16:40 11:19-12:11/52 12:18-13:27/69
31	05:58 07:36-08:14/38	06:39 07:46-08:25/39	07:20	07:03 11:51-13:33/102	07:48 11:06-11:57/51 11:59-13:24/85	08:10 09:42-10:17/35 13:47-14:42/55
	20:59	20:06	19:04	17:08	16:35 11:06-11:57/51 11:59-13:24/85	16:40 11:19-12:12/53 12:18-13:28/70
Sonnenscheinstunden	481	442	378	338	281	265
Anzahl Minuten mit Schatten	1819	562	360	1868	4772	6603

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

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

Berechnung: 241_16_702_Schatten_Oberfeld WEA: 2 - WEA 2
Annahmen für Schattenwurfberechnung

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
395	436	229	207	251	637	1.082	365	782	1.585	809	350	7.128

Startwindgeschwindigkeit 2,5m/s

	Januar	Februar	März	April	Mai	Juni
1	08:10 14:18-15:03/45 16:42	07:50 10:13-11:07/54 17:23 14:36-15:07/31	07:05 13:26-14:42/76 18:06 16:17-17:04/47	07:03 08:20-09:22/62 19:51 17:26-17:35/9	06:07 16:42-18:27/105 20:33	05:30 17:01-18:29/88 21:11
2	08:10 14:18-15:04/46 16:43	07:48 10:13-11:08/55 17:24 14:37-15:05/28	07:03 13:25-14:42/77 18:08 16:16-17:04/48	07:01 08:19-09:21/62 19:52 17:17-17:43/26	06:06 16:42-18:28/106 20:34	05:30 17:02-18:30/88 21:11
3	08:10 14:18-15:04/46 16:44	07:47 10:13-11:07/54 17:26 14:40-15:04/24	07:01 13:25-14:42/77 18:09 16:17-17:05/50	06:59 08:19-09:21/62 19:54 17:12-17:47/35	06:04 16:42-18:28/106 20:35	05:29 17:02-18:29/87 21:12
4	08:10 14:18-15:04/46 16:45	07:46 10:13-11:08/55 17:27 14:43-15:03/20	06:59 13:24-14:42/78 18:11 16:14-17:05/51	06:57 08:19-09:20/61 19:55 17:09-17:50/41	06:03 16:43-18:29/106 20:37	05:28 17:03-18:30/87 21:13
5	08:10 14:19-15:05/46 16:46	07:44 10:13-11:07/54 17:29 14:46-14:59/13	06:57 13:24-14:42/78 18:12 16:13-17:05/52	06:55 08:19-09:19/60 19:56 17:05-17:52/47	06:01 16:43-18:28/105 20:38	05:28 17:04-18:29/85 21:14
6	08:10 10:29-10:37/8 16:47 14:19-15:06/47	07:43 10:13-11:08/55 17:31	06:55 13:24-14:42/78 18:14 16:13-17:05/52	06:53 08:19-09:19/60 19:58 17:03-17:54/51	06:00 16:43-18:29/106 20:40	05:27 17:05-18:29/84 21:15
7	08:09 10:26-10:39/13 16:48 14:19-15:06/47	07:42 10:13-11:07/54 17:32	06:53 13:24-14:42/78 18:15 16:12-17:05/53	06:51 13:25-14:41/76 19:59 17:00-17:56/56	05:58 16:43-18:29/106 20:41	05:27 17:05-18:29/84 21:16
8	08:09 10:25-10:42/17 16:49 14:20-15:07/47	07:40 10:14-11:08/54 17:34 13:57-14:10/13	06:51 13:24-14:41/77 18:17 16:12-17:05/53	06:49 13:25-14:41/76 20:01 16:58-17:58/60	05:57 16:44-18:29/105 20:42	05:27 17:06-18:29/83 21:16
9	08:09 10:24-10:45/21 16:50 14:20-15:08/48	07:39 10:14-11:07/53 17:35 13:52-14:15/23	06:49 13:25-14:41/76 18:18 16:12-17:05/53	06:47 08:19-09:15/56 20:02 16:56-18:00/64	05:55 16:45-18:30/105 20:44	05:26 17:06-18:29/83 21:17
10	08:08 10:23-10:46/23 16:51 14:20-15:08/48	07:37 10:15-11:07/52 17:37 13:49-14:20/31	06:47 13:25-14:41/76 18:19 16:11-17:05/54	06:46 08:19-09:14/55 20:03 16:55-18:02/67	05:54 16:45-18:29/104 20:45	05:26 17:07-18:30/83 21:18
11	08:08 10:22-10:48/26 16:53 14:20-15:08/48	07:36 10:15-11:06/51 17:38 13:46-14:23/37	06:45 13:26-14:40/74 18:21 16:11-17:05/54	06:44 08:20-09:13/53 20:05 16:53-18:04/71	05:52 16:46-18:29/103 20:46	05:26 17:07-18:29/82 21:18
12	08:08 10:21-10:49/28 16:54 14:21-15:09/48	07:34 10:15-11:05/50 17:40 13:43-14:25/42	06:43 13:26-14:39/73 18:22 16:11-17:04/53	06:42 08:20-09:11/51 20:06 16:51-18:06/75	05:51 16:46-18:30/104 20:48	05:25 17:08-18:29/81 21:19
13	08:07 10:19-10:50/31 16:55 14:21-15:09/48	07:33 10:17-11:05/48 17:42 13:41-14:28/47	06:41 07:52-08:02/10 18:24 13:27-14:39/72	06:40 08:22-09:11/49 20:08 16:50-18:08/78	05:50 16:46-18:29/103 20:49	05:25 17:08-18:29/81 21:20
14	08:07 10:19-10:52/33 16:56 14:22-15:10/48	07:31 10:17-11:03/46 17:43 13:39-14:29/50	06:39 07:46-08:07/21 18:25 13:28-14:38/70	06:38 08:22-09:09/47 20:09 16:49-18:11/82	05:48 16:47-18:29/102 20:50	05:25 17:09-18:30/81 21:20
15	08:06 10:18-10:53/35 16:58 14:22-15:10/48	07:29 10:17-11:02/45 17:45 13:37-14:31/54	06:37 07:42-08:11/29 18:27 13:29-14:37/68	06:36 08:23-09:07/44 20:10 16:48-18:13/85	05:47 16:48-18:30/102 20:51	05:25 17:09-18:30/81 21:21
16	08:05 10:17-10:54/37 16:59 14:22-15:10/48	07:28 10:19-11:01/42 17:46 13:37-14:33/56	06:35 07:39-08:13/34 18:28 13:31-14:36/65	06:34 08:24-09:05/41 20:12 16:47-18:15/88	05:46 16:49-18:30/101 20:52	05:25 17:10-18:30/80 21:21
17	08:05 10:17-10:55/38 17:01 14:22-15:11/47	07:26 10:20-10:59/39 17:48 13:35-14:34/59	06:33 07:37-08:16/41 18:30 13:32-14:35/63	06:32 08:25-09:03/38 20:13 16:46-18:16/90	05:44 16:50-18:30/100 20:54	05:25 17:10-18:30/80 21:22
18	08:04 10:17-10:57/40 17:02 14:24-15:11/47	07:24 10:21-10:57/36 17:49 13:33-14:35/62	06:31 07:35-08:16/41 18:31 13:34-14:33/59	06:30 08:26-09:01/35 20:15 16:45-18:17/92	05:43 16:50-18:30/100 20:55	05:25 17:11-18:30/79 21:22
19	08:03 10:16-10:58/42 17:03 14:24-15:11/47	07:23 10:23-10:54/31 17:51 13:32-14:36/64	06:29 07:33-08:18/45 18:32 13:36-14:32/56	06:28 08:27-08:58/31 20:16 16:44-18:19/94	05:42 16:51-18:30/99 20:56	05:25 17:11-18:30/79 21:22
20	08:02 10:16-10:59/43 17:05 14:24-15:12/48	07:21 10:25-10:52/27 17:52 13:32-14:38/66	06:27 07:31-08:19/48 18:34 13:39-14:30/51	06:27 08:30-08:56/26 20:17 16:44-18:20/96	05:41 16:52-18:30/98 20:58	05:25 17:11-18:30/79 21:23
21	08:02 10:15-11:00/45 17:06 14:25-15:12/47	07:19 10:28-10:48/20 17:54 13:31-14:38/67	06:25 07:29-08:20/51 18:35 13:42-14:28/46	06:25 08:33-08:53/20 20:19 16:43-18:21/98	05:40 16:53-18:30/97 20:59	05:25 17:12-18:31/79 21:23
22	08:01 10:15-11:01/46 17:08 14:25-15:12/47	07:17 10:33-10:41/8 17:56 13:30-14:39/69	06:23 07:28-08:21/53 18:37 13:45-14:26/41	06:23 08:37-08:47/10 20:20 16:43-18:22/99	05:39 16:53-18:30/97 21:00	05:25 17:12-18:31/79 21:23
23	08:00 10:15-11:02/47 17:09 14:26-15:12/46	07:16 13:29-14:40/71 17:57 16:25-16:56/31	06:21 07:27-08:21/54 18:38 13:50-14:23/33	06:21 16:42-18:22/100 20:22	05:38 16:54-18:30/96 21:01	05:26 17:12-18:31/79 21:23
24	07:59 10:14-11:03/49 17:11 14:27-15:12/45	07:14 13:28-14:40/72 17:59 16:23-16:57/34	06:19 07:26-08:22/56 18:40 13:55-14:19/24	06:19 16:42-18:24/102 20:23	05:37 16:55-18:30/95 21:02	05:26 17:12-18:31/79 21:23
25	07:58 10:14-11:04/50 17:12 14:28-15:11/43	07:12 13:27-14:40/73 18:00 16:21-16:59/38	06:17 07:25-08:22/57 18:41 14:03-14:12/9	06:18 16:42-18:24/102 20:24	05:36 16:55-18:29/94 21:03	05:26 17:12-18:32/80 21:23
26	07:57 10:13-11:04/51 17:14 14:28-15:10/42	07:10 13:27-14:42/75 18:02 16:21-17:01/40	06:15 07:24-08:22/58 18:42 16:34-16:37/3	06:16 16:41-18:25/104 20:26	05:35 16:56-18:29/93 21:04	05:27 17:12-18:32/80 21:23
27	07:56 10:13-11:04/51 17:15 14:29-15:10/41	07:08 13:27-14:42/75 18:03 16:19-17:02/43	06:13 07:23-08:23/60 18:44	06:14 16:42-18:26/104 20:27	05:34 16:57-18:29/92 21:06	05:27 17:12-18:32/80 21:23
28	07:55 10:13-11:05/52 17:17 14:30-15:10/40	07:07 13:26-14:42/76 18:05 16:18-17:03/45	06:11 07:22-08:23/61 18:45	06:12 16:42-18:26/104 20:29	05:33 16:58-18:30/92 21:07	05:27 17:12-18:33/81 21:23
29	07:53 10:13-11:06/53 17:18 14:31-15:10/39	18:05	07:09 08:21-09:23/62 19:47	06:11 16:41-18:26/105 20:30	05:32 16:59-18:29/90 21:08	05:28 17:12-18:33/81 21:23
30	07:52 10:13-11:07/54 17:20 14:32-15:08/36		07:07 08:21-09:22/61 19:48	06:09 16:42-18:27/105 20:31	05:32 16:59-18:29/90 21:09	05:28 17:12-18:33/81 21:23
31	07:51 10:13-11:06/53 17:21 14:34-15:08/34		07:05 08:20-09:22/62 19:49		05:31 17:00-18:30/90 21:10	
	Sonnenscheinstunden 277 Anzahl Minuten mit Schatten 2390	287 2566	368 3614	408 3370	468 3092	476 2454

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

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

SHADOW - Kalender pro WEA

Berechnung: 241_16_702_Schatten_Oberfeld WEA: 2 - WEA 2
Annahmen für Schattenwurfberechnung

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) []
Jan Feb Mär Apr Mai Jun Jul Aug Sep Okt Nov Dez
1,85 2,84 4,26 5,69 5,97 6,68 7,26 6,61 5,09 3,24 2,01 1,60

Betriebsdauer je Sektor

N NNO ONO O OSO SSO S SSW WSW W WNW NNW Summe
395 436 229 207 251 637 1.082 365 782 1.585 809 350 7.128
Startwindgeschwindigkeit 2,5m/s

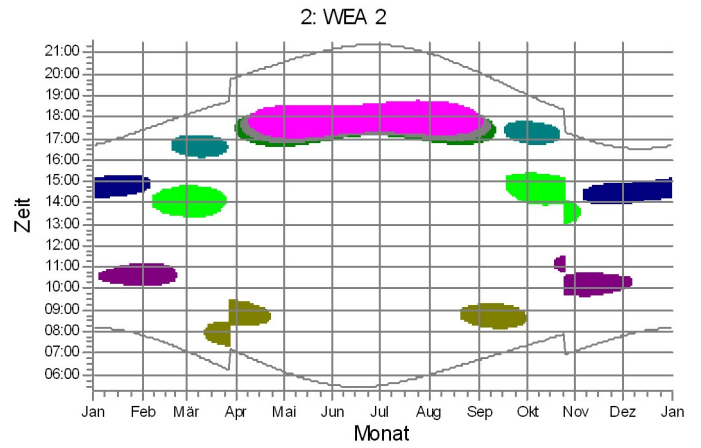
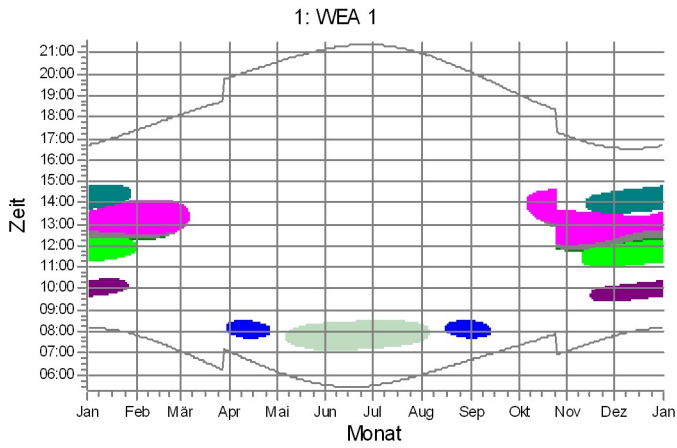
	July	August	September	Oktober	November	Dezember
1	05:29 17:11-18:33/82 21:23	05:59 16:57-18:40/103 20:58	06:40 08:19-09:12/53 20:05 16:52-18:03/71	07:20 14:06-15:19/73 19:04 16:51-17:44/53	07:05 09:44-10:36/52 17:07 13:18-13:48/30	07:48 10:04-10:30/26 16:34 14:02-14:50/48
2	05:30 17:12-18:34/82 21:23	06:00 16:56-18:40/104 20:56	06:41 08:18-09:13/55 20:03 16:54-18:01/67	07:21 14:05-15:19/74 19:02 16:50-17:43/53	07:06 09:44-10:37/53 17:05 13:22-13:44/22	07:49 10:06-10:29/23 16:34 14:03-14:51/48
3	05:30 17:12-18:35/83 21:23	06:02 16:55-18:40/105 20:55	06:43 08:17-09:13/56 20:01 16:54-17:58/64	07:23 14:03-15:18/75 19:00 16:49-17:43/54	07:08 09:44-10:37/53 17:04 13:29-13:38/9	07:50 10:07-10:28/21 16:33 14:03-14:51/48
4	05:31 17:11-18:34/83 21:22	06:03 16:54-18:39/105 20:53	06:44 08:16-09:14/58 19:59 16:55-17:55/60	07:24 14:03-15:19/76 18:58 16:49-17:43/54	07:09 09:43-10:37/54 17:02	07:51 10:09-10:26/17 16:33 14:04-14:51/47
5	05:32 17:11-18:35/84 21:22	06:04 16:53-18:39/106 20:52	06:45 08:16-09:15/59 19:57 16:56-17:52/56	07:26 14:01-15:18/77 18:56 16:49-17:42/53	07:11 09:43-10:38/55 17:01	07:53 10:11-10:25/14 16:33 14:04-14:51/47
6	05:32 17:11-18:36/85 21:21	06:06 16:54-18:39/105 20:50	06:47 08:15-09:15/60 19:55 16:59-17:50/51	07:27 14:01-15:19/78 18:54 16:49-17:42/53	07:12 09:43-10:37/54 16:59 14:15-14:29/14	07:54 10:15-10:23/8 16:32 14:05-14:52/47
7	05:33 17:10-18:35/85 21:21	06:07 16:53-18:38/105 20:49	06:48 08:14-09:14/60 19:53 17:00-17:47/47	07:28 14:00-15:18/78 18:52 16:48-17:41/53	07:14 09:43-10:38/55 16:58 14:12-14:33/21	07:55 14:06-14:52/46 16:32
8	05:34 17:10-18:36/86 21:21	06:08 16:52-18:38/106 20:47	06:49 08:13-09:14/61 19:51 17:02-17:44/42	07:30 14:00-15:18/78 18:50 16:48-17:40/52	07:15 09:44-10:38/54 16:57 14:10-14:35/25	07:56 14:06-14:53/47 16:32
9	05:35 17:10-18:36/86 21:20	06:09 16:51-18:37/106 20:46	06:51 08:13-09:15/62 19:49 17:06-17:41/35	07:31 13:59-15:17/78 18:48 16:49-17:40/51	16:57 14:10-14:38/55 16:55 14:08-14:36/28	07:57 14:07-14:53/46 16:32
10	05:35 17:10-18:37/87 21:19	06:11 16:51-18:37/106 20:44	06:52 08:13-09:14/61 19:47 17:10-17:36/26	07:32 13:59-15:16/77 18:46 16:48-17:39/51	16:54 14:06-14:38/32 16:53 14:04-14:39/35	07:58 14:07-14:53/46 16:32
11	05:36 17:09-18:37/88 21:19	06:12 16:51-18:36/105 20:43	06:53 08:12-09:14/62 19:45 17:16-17:28/12	07:34 13:59-15:17/78 18:44 16:49-17:39/50	16:53 14:04-14:39/35 16:51 14:04-14:30/36	07:59 14:08-14:53/45 16:32
12	05:37 17:08-18:37/89 21:18	06:13 16:50-18:36/106 20:41	06:55 08:11-09:13/62 19:43	07:35 13:58-15:16/78 18:42 16:49-17:37/48	16:51 14:04-14:30/36 16:50 14:03-14:42/39	08:00 14:09-14:54/45 16:32
13	05:38 17:08-18:37/89 21:18	06:15 16:49-18:35/106 20:39	06:56 08:12-09:14/62 19:41	07:37 13:59-15:15/76 18:40 16:50-17:36/46	16:50 14:03-14:42/39 16:49 14:02-14:42/40	08:01 14:09-14:54/45 16:32
14	05:39 17:07-18:38/91 21:17	06:16 16:50-18:35/105 20:38	06:57 08:12-09:13/61 19:39	07:38 13:58-15:14/76 18:38 16:51-17:35/44	16:49 14:02-14:42/40 16:48 14:02-14:43/41	08:02 14:10-14:55/45 16:32
15	05:40 17:07-18:38/91 21:16	06:17 16:49-18:34/105 20:36	06:58 08:11-09:12/61 19:36	07:40 13:59-15:14/75 18:36 16:52-17:34/42	16:48 14:02-14:43/41 16:47 14:01-14:43/42	08:02 14:10-14:54/44 16:32
16	05:41 17:06-18:38/92 21:15	06:19 16:49-18:32/103 20:34	07:00 08:12-09:12/60 19:34	07:41 13:59-15:13/74 18:35 16:53-17:32/39	16:47 14:01-14:43/42 16:47 14:01-14:43/42	08:03 14:10-14:55/45 16:32
17	05:42 17:06-18:39/93 21:14	06:20 16:48-18:31/103 20:32	07:01 08:12-09:11/59 19:32	07:42 13:59-15:13/74 18:33 16:54-17:30/36	16:47 14:01-14:43/42 16:45 14:01-14:44/43	08:04 14:11-14:55/44 16:32
18	05:43 17:05-18:39/94 21:14	06:21 16:49-18:31/102 20:31	07:02 08:12-09:10/58 19:30 17:16-17:31/15	07:44 13:59-15:11/72 18:31 16:55-17:28/33	16:45 14:01-14:44/43 16:44 14:01-14:46/45	08:05 14:12-14:56/44 16:33
19	05:44 17:05-18:39/94 21:13	06:23 16:48-18:29/101 20:29	07:04 08:13-09:09/56 19:28 14:44-15:06/22	17:12-17:35/23 17:09-17:37/28	16:45 14:00-15:11/71 18:29 16:57-17:26/29	08:06 14:12-14:56/44 16:33
20	05:45 17:04-18:39/95 21:12	06:24 16:48-18:28/100 20:27	07:05 08:13-09:08/55 19:26 14:37-15:09/32	17:06-17:38/32 17:06-17:38/32	16:59-17:23/24 16:59-17:23/24	08:06 14:13-14:57/44 16:33
21	05:46 17:03-18:39/96 21:11	06:25 08:40-08:53/13 20:25 16:47-18:26/99	07:06 08:13-09:06/53 19:24 14:32-15:11/39	07:48 10:58-11:20/22 18:25 14:01-15:09/68	17:03-17:20/17 17:03-17:20/17	08:07 14:13-14:57/44 16:34
22	05:47 17:03-18:39/96 21:10	06:27 08:37-08:58/21 20:24 16:48-18:26/98	07:08 08:15-09:06/51 19:22 14:27-15:12/45	07:50 10:54-11:22/28 18:24 14:02-15:07/65	16:41 14:00-14:47/47 16:41 14:00-14:48/48	08:07 14:14-14:58/44 16:34
23	05:48 17:02-18:40/98 21:09	06:28 08:34-09:01/27 20:22 16:48-18:24/96	07:09 08:15-09:04/49 19:20 14:24-15:14/50	07:51 10:52-11:25/33 18:22 14:03-15:06/63	16:41 14:00-14:47/47 16:41 14:00-14:47/47	08:08 14:14-14:58/44 16:35
24	05:50 17:01-18:40/99 21:07	06:29 08:31-09:02/31 20:20 16:48-18:22/94	07:11 08:16-09:02/46 19:18 14:21-15:15/54	07:53 10:51-11:28/37 18:20 14:04-15:05/61	16:39 14:01-14:48/47 16:39 14:01-14:48/47	08:08 14:14-14:58/44 16:35
25	05:51 17:01-18:41/100 21:06	06:31 08:30-09:05/35 20:18 16:48-18:20/92	07:12 08:18-09:01/43 19:16 14:17-15:16/59	06:54 09:49-10:29/40 17:18 13:05-14:03/58	16:40 14:00-14:46/46 16:40 14:00-14:46/46	08:08 14:15-14:59/44 16:36
26	05:52 17:01-18:40/99 21:05	06:32 08:28-09:06/38 20:16 16:49-18:19/90	07:13 08:19-08:58/39 19:14 14:16-15:17/61	06:56 09:48-10:31/43 17:17 13:07-14:02/55	16:39 14:01-14:49/48 16:39 14:01-14:49/48	08:09 14:15-14:59/44 16:37
27	05:53 17:00-18:40/100 21:04	06:33 08:26-09:07/41 20:14 16:49-18:16/87	07:15 08:20-08:55/35 19:12 14:13-15:17/64	06:57 09:47-10:32/45 17:15 13:07-14:00/53	16:37 14:01-14:49/48 16:37 14:01-14:49/48	08:09 14:15-15:00/45 16:37
28	05:54 16:59-18:40/101 21:03	06:35 08:24-09:08/44 20:12 16:49-18:14/85	07:16 08:23-08:53/30 19:10 14:11-15:18/67	06:59 09:46-10:33/47 17:13 13:09-13:58/49	16:36 14:01-14:49/48 16:36 14:01-14:49/48	08:09 14:16-15:00/44 16:38
29	05:56 16:58-18:40/102 21:02	06:36 08:23-09:10/47 20:10 16:50-18:12/82	07:17 08:25-08:50/25 19:08 14:09-15:18/69	07:00 09:46-10:34/48 17:12 13:11-13:56/45	16:35 14:02-14:50/48 16:35 14:02-14:50/48	08:10 14:17-15:01/44 16:39
30	05:57 16:57-18:40/103 21:00	06:37 08:21-09:11/50 20:08 16:51-18:09/78	07:19 08:29-08:44/15 19:06 14:07-15:18/71	07:02 09:45-10:35/50 17:10 13:13-13:54/41	16:35 14:02-14:50/48 16:35 14:02-14:50/48	08:10 14:17-15:02/45 16:40
31	05:58 16:56-18:40/104 20:59	06:39 08:20-09:11/51 20:07 16:51-18:05/74	19:06	07:03 09:45-10:36/51 17:08 13:16-13:52/36	16:35 14:02-14:50/48 16:35 14:02-14:50/48	08:10 14:17-15:03/46 16:40
Sonnenscheinstunden	481	442	378	338	281	265
Anzahl Minuten mit Schatten	2857	3460	3236	3493	2490	1512

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

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

Berechnung: 241_16_702_Schatten_Oberfeld

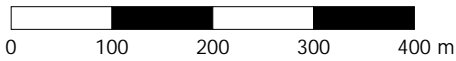
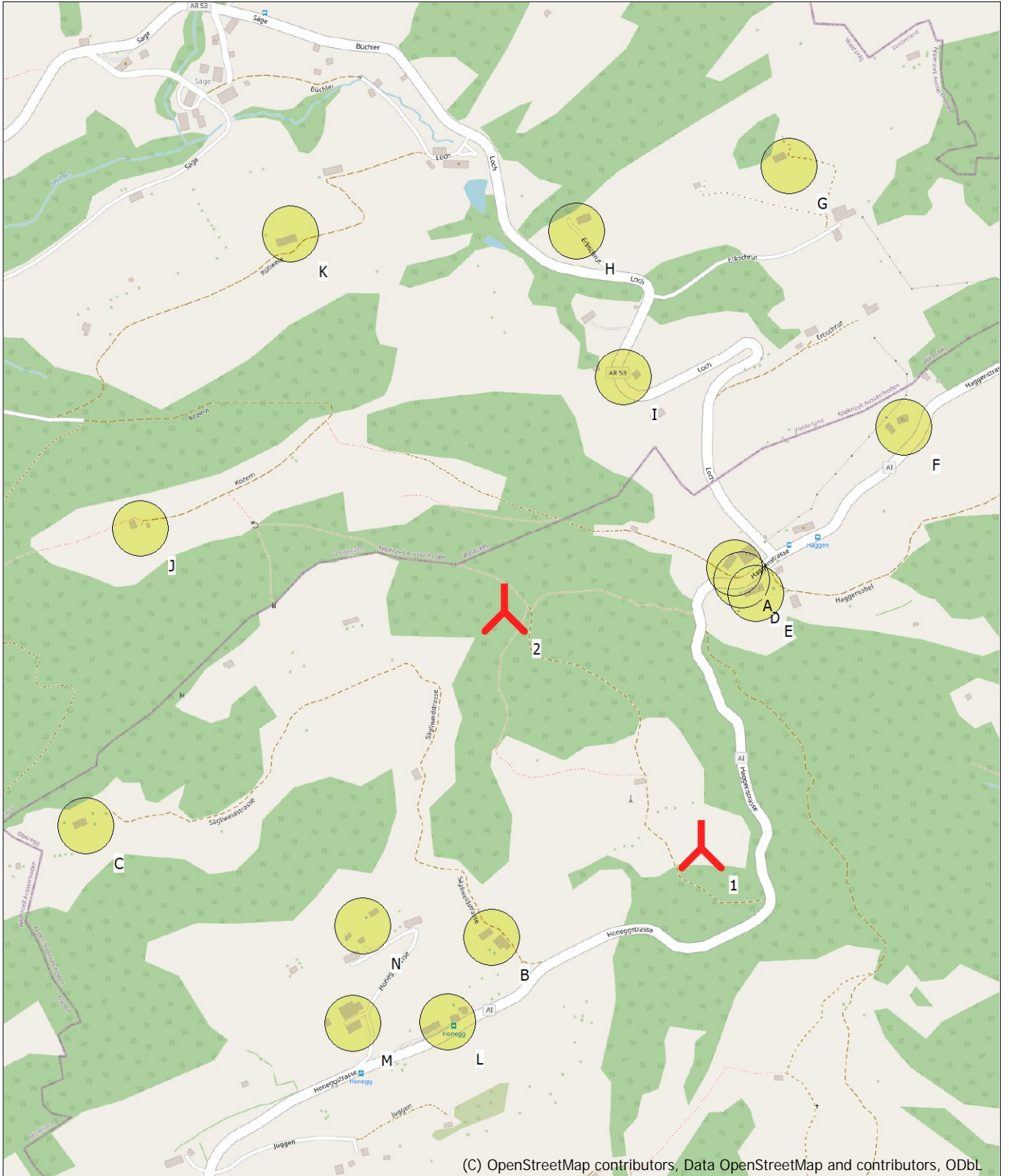


Schattenrezeptoren

	A: Haggen 2		E: Haggen 1		I: Rütiweid 2		N: Honegg 4
	C: Sägliroeit 1		F: Haggen 3		J: Chozeren 1		
	D: Haggen 4		G: Erbskraut 1		K: Rütiweid 3		

SHADOW - Karte

Berechnung: 241_16_702_Schatten_Oberfeld



Karte: EMD OpenStreetMap , Maßstab 1:7.500, Mitte: Swiss (LV95)-CH1903+ (CH/LI 1993) Ost: 2.757.058 Nord: 1.252.578

Neue WEA Schattenrezeptor

Höhe der Schattenkarte: Höhenlinien: Appenzell_Hoe 5m_10_R30km