



Weil • Winterkamp • Knopp
Landschaftsarchitektin • Geographen
Partnerschaft für Umweltplanung

**Prognose des Schattenschlagwurfs
von vier Windenergieanlagen
Nordex N163/6.X TCS164
in Ahaus (Lüntener Mark)
Anhang 2: Schattenschlagkalender WEA 2**

Auftraggeber:
Hörsteloer Bürgerwind GmbH & Co. KG
Hengeler 11
48703 Stadtlohn

08.12.2023

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 09-SO - IP 09-SO
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | |
|---------------------------|--------|------------------|-------|-------|-------|-------|-------|--------|-----------|---------|----------|----------|-------|------------------|
| 1 | 08:42 | 14:05 (WEA 2) | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | |
| | 16:31 | 24 14:29 (WEA 2) | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:13 | 17:06 | 16:25 | |
| 2 | 08:42 | 14:06 (WEA 2) | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | |
| | 16:32 | 24 14:30 (WEA 2) | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | |
| 3 | 08:41 | 14:08 (WEA 2) | 08:11 | 07:17 | 07:05 | 06:01 | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:21 | 14:03 (WEA 2) |
| | 16:33 | 22 14:30 (WEA 2) | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | 4 14:07 (WEA 2) |
| 4 | 08:41 | 14:08 (WEA 2) | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:58 | 06:48 | 07:37 | 07:32 | 08:22 | 14:00 (WEA 2) |
| | 16:34 | 21 14:29 (WEA 2) | 17:25 | 18:16 | 20:11 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:01 | 16:23 | 11 14:11 (WEA 2) |
| 5 | 08:41 | 14:10 (WEA 2) | 08:08 | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:50 | 07:39 | 07:34 | 08:23 | 13:58 (WEA 2) |
| | 16:35 | 19 14:29 (WEA 2) | 17:26 | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | 15 14:13 (WEA 2) |
| 6 | 08:41 | 14:11 (WEA 2) | 08:06 | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:25 | 13:57 (WEA 2) |
| | 16:37 | 17 14:28 (WEA 2) | 17:28 | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:22 | 17 14:14 (WEA 2) |
| 7 | 08:40 | 14:13 (WEA 2) | 08:05 | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 08:26 | 13:57 (WEA 2) |
| | 16:38 | 15 14:28 (WEA 2) | 17:30 | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:22 | 19 14:16 (WEA 2) |
| 8 | 08:40 | 14:15 (WEA 2) | 08:03 | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | 13:56 (WEA 2) |
| | 16:39 | 11 14:26 (WEA 2) | 17:32 | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 16:22 | 21 14:17 (WEA 2) |
| 9 | 08:39 | 14:19 (WEA 2) | 08:01 | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | 13:56 (WEA 2) |
| | 16:41 | 5 14:24 (WEA 2) | 17:34 | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:11 | 20:04 | 18:54 | 16:52 | 16:21 | 22 14:18 (WEA 2) |
| 10 | 08:39 | | 07:59 | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:48 | 07:43 | 08:29 | 13:56 (WEA 2) |
| | 16:42 | | 17:36 | 18:27 | 20:21 | 21:12 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 16:50 | 16:21 | 23 14:19 (WEA 2) |
| 11 | 08:38 | | 07:58 | 06:59 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | 07:44 | 08:30 | 13:56 (WEA 2) |
| | 16:43 | | 17:38 | 18:29 | 20:23 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 16:49 | 16:21 | 24 14:20 (WEA 2) |
| 12 | 08:38 | | 07:56 | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 07:46 | 08:32 | 13:56 (WEA 2) |
| | 16:45 | | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 16:47 | 16:21 | 25 14:21 (WEA 2) |
| 13 | 08:37 | | 07:54 | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 07:48 | 08:33 | 13:56 (WEA 2) |
| | 16:46 | | 17:41 | 18:32 | 20:26 | 21:16 | 21:54 | 21:50 | 21:03 | 19:55 | 18:45 | 16:46 | 16:21 | 26 14:22 (WEA 2) |
| 14 | 08:36 | | 07:52 | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:14 | 07:04 | 07:54 | 07:50 | 08:33 | 13:57 (WEA 2) |
| | 16:48 | | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:43 | 16:44 | 16:21 | 26 14:23 (WEA 2) |
| 15 | 08:35 | | 07:50 | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:56 | 07:52 | 08:34 | 13:56 (WEA 2) |
| | 16:50 | | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 16:43 | 16:21 | 27 14:23 (WEA 2) |
| 16 | 08:34 | | 07:48 | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | 07:53 | 08:35 | 13:56 (WEA 2) |
| | 16:51 | | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 16:41 | 16:21 | 27 14:23 (WEA 2) |
| 17 | 08:34 | | 07:46 | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | 07:55 | 08:36 | 13:57 (WEA 2) |
| | 16:53 | | 17:49 | 18:39 | 20:33 | 21:23 | 21:56 | 21:46 | 20:55 | 19:45 | 18:36 | 16:40 | 16:21 | 27 14:24 (WEA 2) |
| 18 | 08:33 | | 07:44 | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 07:57 | 08:37 | 13:57 (WEA 2) |
| | 16:54 | | 17:51 | 18:41 | 20:35 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 16:39 | 16:21 | 28 14:25 (WEA 2) |
| 19 | 08:32 | | 07:42 | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 07:59 | 08:38 | 13:58 (WEA 2) |
| | 16:56 | | 17:53 | 18:43 | 20:36 | 21:26 | 21:57 | 21:43 | 20:51 | 19:41 | 18:32 | 16:37 | 16:22 | 28 14:26 (WEA 2) |
| 20 | 08:31 | | 07:40 | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 08:00 | 08:38 | 13:58 (WEA 2) |
| | 16:58 | | 17:55 | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:49 | 19:38 | 18:30 | 16:36 | 16:22 | 28 14:26 (WEA 2) |
| 21 | 08:29 | | 07:38 | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 08:02 | 08:39 | 13:59 (WEA 2) |
| | 16:59 | | 17:56 | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 16:35 | 16:23 | 28 14:27 (WEA 2) |
| 22 | 08:28 | | 07:36 | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 08:04 | 08:39 | 13:59 (WEA 2) |
| | 17:01 | | 17:58 | 18:48 | 20:41 | 21:30 | 21:57 | 21:40 | 20:44 | 19:34 | 18:26 | 16:34 | 16:23 | 28 14:27 (WEA 2) |
| 23 | 08:27 | | 07:34 | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 08:05 | 08:40 | 14:00 (WEA 2) |
| | 17:03 | | 18:00 | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 16:33 | 16:23 | 28 14:28 (WEA 2) |
| 24 | 08:26 | | 07:32 | 06:29 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 08:07 | 08:40 | 14:00 (WEA 2) |
| | 17:05 | | 18:02 | 18:52 | 20:45 | 21:33 | 21:58 | 21:37 | 20:40 | 19:29 | 18:22 | 16:31 | 16:24 | 28 14:28 (WEA 2) |
| 25 | 08:25 | | 07:30 | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 07:14 | 08:09 | 08:41 | 14:00 (WEA 2) |
| | 17:06 | | 18:04 | 18:53 | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 17:20 | 16:30 | 16:25 | 28 14:28 (WEA 2) |
| 26 | 08:23 | | 07:27 | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 07:16 | 08:10 | 08:41 | 14:00 (WEA 2) |
| | 17:08 | | 18:06 | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 17:18 | 16:29 | 16:25 | 28 14:28 (WEA 2) |
| 27 | 08:22 | | 07:25 | 06:22 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 07:17 | 08:12 | 08:41 | 14:02 (WEA 2) |
| | 17:10 | | 18:07 | 18:57 | 20:50 | 21:37 | 21:58 | 21:33 | 20:33 | 19:22 | 17:16 | 16:29 | 16:26 | 27 14:29 (WEA 2) |
| 28 | 08:21 | | 07:23 | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 07:19 | 08:13 | 08:41 | 14:03 (WEA 2) |
| | 17:12 | | 18:09 | 18:58 | 20:52 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 17:14 | 16:28 | 16:27 | 26 14:29 (WEA 2) |
| 29 | 08:19 | | | 07:17 | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 07:21 | 08:15 | 08:42 | 14:03 (WEA 2) |
| | 17:14 | | | 20:00 | 20:53 | 21:39 | 21:57 | 21:30 | 20:29 | 19:17 | 17:12 | 16:27 | 16:28 | 27 14:30 (WEA 2) |
| 30 | 08:18 | | | 07:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 07:23 | 08:16 | 08:42 | 14:04 (WEA 2) |
| | 17:15 | | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 17:10 | 16:26 | 16:29 | 26 14:30 (WEA 2) |
| 31 | 08:16 | | | 07:12 | | 05:20 | | 05:51 | 06:41 | | 07:25 | | 08:42 | 14:05 (WEA 2) |
| | 17:17 | | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | | 16:30 | 25 14:30 (WEA 2) |
| Sonnenscheinstunden | 258 | | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 266 | 243 | 697 |
| astr.max.mögl.Beschattung | | 158 | | | | | | | | | | | | |

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) | Schattendecke (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|-------------------|--|--|
|--------------|-----------------------|-------------------------|----------------------|-------------------|--|--|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 09-SW - IP 09-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | |
|---------------------------|--------|------------------|-------|-------|-------|-------|-------|--------|-----------|---------|----------|----------|-------|------------------|
| 1 | 08:42 | 14:04 (WEA 2) | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | |
| | 16:31 | 23 14:27 (WEA 2) | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:13 | 17:06 | 16:25 | |
| 2 | 08:42 | 14:05 (WEA 2) | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | |
| | 16:32 | 22 14:27 (WEA 2) | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | |
| 3 | 08:41 | 14:07 (WEA 2) | 08:11 | 07:17 | 07:05 | 06:01 | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:21 | |
| | 16:33 | 20 14:27 (WEA 2) | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | |
| 4 | 08:41 | 14:08 (WEA 2) | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:58 | 06:48 | 07:37 | 07:32 | 08:22 | 14:01 (WEA 2) |
| | 16:34 | 18 14:26 (WEA 2) | 17:25 | 18:16 | 20:11 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:01 | 16:23 | 5 14:06 (WEA 2) |
| 5 | 08:41 | 14:09 (WEA 2) | 08:08 | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:50 | 07:39 | 07:34 | 08:23 | 13:58 (WEA 2) |
| | 16:35 | 17 14:26 (WEA 2) | 17:26 | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | 11 14:09 (WEA 2) |
| 6 | 08:41 | 14:10 (WEA 2) | 08:06 | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:25 | 13:57 (WEA 2) |
| | 16:37 | 15 14:25 (WEA 2) | 17:28 | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:22 | 14 14:11 (WEA 2) |
| 7 | 08:40 | 14:13 (WEA 2) | 08:05 | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 08:26 | 13:57 (WEA 2) |
| | 16:38 | 11 14:24 (WEA 2) | 17:30 | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:22 | 16 14:13 (WEA 2) |
| 8 | 08:40 | 14:16 (WEA 2) | 08:03 | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | 13:56 (WEA 2) |
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| 9 | 08:39 | | 08:01 | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | 13:55 (WEA 2) |
| | 16:41 | | 17:34 | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:11 | 20:04 | 18:54 | 16:52 | 16:21 | 20 14:15 (WEA 2) |
| 10 | 08:39 | | 07:59 | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:48 | 07:43 | 08:29 | 13:55 (WEA 2) |
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| 11 | 08:38 | | 07:58 | 06:59 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | 07:44 | 08:30 | 13:55 (WEA 2) |
| | 16:43 | | 17:38 | 18:29 | 20:23 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 16:49 | 16:21 | 23 14:18 (WEA 2) |
| 12 | 08:38 | | 07:56 | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 07:46 | 08:32 | 13:55 (WEA 2) |
| | 16:45 | | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 16:47 | 16:21 | 23 14:18 (WEA 2) |
| 13 | 08:37 | | 07:54 | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 07:48 | 08:33 | 13:55 (WEA 2) |
| | 16:46 | | 17:41 | 18:32 | 20:26 | 21:16 | 21:54 | 21:50 | 21:03 | 19:55 | 18:45 | 16:46 | 16:21 | 24 14:19 (WEA 2) |
| 14 | 08:36 | | 07:52 | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:14 | 07:04 | 07:54 | 07:50 | 08:33 | 13:55 (WEA 2) |
| | 16:48 | | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:43 | 16:44 | 16:21 | 25 14:20 (WEA 2) |
| 15 | 08:35 | | 07:50 | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:56 | 07:52 | 08:34 | 13:55 (WEA 2) |
| | 16:50 | | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 16:43 | 16:21 | 25 14:20 (WEA 2) |
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| | 16:51 | | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 16:41 | 16:21 | 26 14:21 (WEA 2) |
| 17 | 08:34 | | 07:46 | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | 07:55 | 08:36 | 13:55 (WEA 2) |
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| 18 | 08:33 | | 07:44 | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 07:57 | 08:37 | 13:56 (WEA 2) |
| | 16:54 | | 17:51 | 18:41 | 20:35 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 16:39 | 16:21 | 27 14:23 (WEA 2) |
| 19 | 08:32 | | 07:42 | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 07:59 | 08:38 | 13:57 (WEA 2) |
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| 21 | 08:29 | | 07:38 | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 08:02 | 08:39 | 13:57 (WEA 2) |
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| 26 | 08:23 | | 07:27 | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 07:16 | 08:10 | 08:41 | 13:59 (WEA 2) |
| | 17:08 | | 18:06 | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 17:18 | 16:29 | 16:25 | 27 14:26 (WEA 2) |
| 27 | 08:22 | | 07:25 | 06:22 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 07:17 | 08:12 | 08:41 | 14:01 (WEA 2) |
| | 17:10 | | 18:07 | 18:57 | 20:50 | 21:37 | 21:58 | 21:33 | 20:33 | 19:22 | 17:16 | 16:29 | 16:26 | 26 14:27 (WEA 2) |
| 28 | 08:21 | | 07:23 | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 07:19 | 08:13 | 08:41 | 14:01 (WEA 2) |
| | 17:12 | | 18:09 | 18:58 | 20:52 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 17:14 | 16:28 | 16:27 | 26 14:27 (WEA 2) |
| 29 | 08:19 | | | 07:17 | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 07:21 | 08:15 | 08:42 | 14:02 (WEA 2) |
| | 17:14 | | | 20:00 | 20:53 | 21:39 | 21:57 | 21:30 | 20:29 | 19:17 | 17:12 | 16:27 | 16:28 | 25 14:27 (WEA 2) |
| 30 | 08:18 | | | 07:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 07:23 | 08:16 | 08:42 | 14:03 (WEA 2) |
| | 17:15 | | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 17:10 | 16:26 | 16:29 | 24 14:27 (WEA 2) |
| 31 | 08:16 | | | 07:12 | | 05:20 | | 05:51 | 06:41 | | 07:25 | | 08:42 | 14:04 (WEA 2) |
| | 17:17 | | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | | 16:30 | 23 14:27 (WEA 2) |
| Sonnenscheinstunden | 258 | | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 266 | 243 | 642 |
| astr.max.mögl.Beschattung | | 131 | | | | | | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 10-SO - IP 10-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|------------------------|----------------|------------------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 15:08 (WEA 2) 17:19 | 08:15 17:19 | 15:16 (WEA 2) 18:11 | 07:21 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 15:08 (WEA 2) 17:21 | 08:13 17:21 | 15:17 (WEA 2) 18:13 | 07:19 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 15:08 (WEA 2) 17:23 | 08:11 17:23 | 15:18 (WEA 2) 18:15 | 07:17 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 15:08 (WEA 2) 17:25 | 08:10 17:25 | 15:20 (WEA 2) 18:16 | 07:14 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 15:08 (WEA 2) 17:26 | 08:08 17:26 | 15:21 (WEA 2) 18:18 | 07:12 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 15:08 (WEA 2) 17:28 | 08:06 17:28 | 15:23 (WEA 2) 18:20 | 07:10 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 15:08 (WEA 2) 17:30 | 08:05 17:30 | 15:26 (WEA 2) 18:22 | 07:08 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 15:08 (WEA 2) 17:32 | 08:03 17:32 | 15:30 (WEA 2) 18:24 | 07:05 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 15:09 (WEA 2) 17:34 | 08:01 17:34 | 15:38 (WEA 2) 18:25 | 07:03 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 15:09 (WEA 2) 17:36 | 07:59 17:36 | 15:45 (WEA 2) 18:27 | 07:01 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 15:08 (WEA 2) 17:38 | 07:58 17:38 | 15:45 (WEA 2) 18:29 | 06:59 20:23 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 15:08 (WEA 2) 17:40 | 07:56 17:40 | 15:08 (WEA 2) 18:31 | 06:56 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 15:08 (WEA 2) 17:41 | 07:54 17:41 | 15:46 (WEA 2) 18:32 | 06:54 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 15:08 (WEA 2) 17:43 | 07:52 17:43 | 15:47 (WEA 2) 18:34 | 06:52 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 15:08 (WEA 2) 17:45 | 07:50 17:45 | 15:08 (WEA 2) 18:36 | 06:49 20:29 | 05:38 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 15:09 (WEA 2) 17:47 | 07:48 17:47 | 15:48 (WEA 2) 18:38 | 06:47 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 15:09 (WEA 2) 17:49 | 07:46 17:49 | 15:49 (WEA 2) 18:39 | 06:45 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 15:09 (WEA 2) 17:51 | 07:44 17:51 | 15:09 (WEA 2) 18:41 | 06:42 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 15:09 (WEA 2) 17:53 | 07:42 17:53 | 15:50 (WEA 2) 18:43 | 06:40 20:36 | 05:34 21:26 | 05:12 21:57 |
| 20 | 08:31 16:58 | 15:10 (WEA 2) 17:54 | 07:40 17:54 | 15:10 (WEA 2) 18:45 | 06:38 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 15:09 (WEA 2) 17:56 | 07:38 17:56 | 15:09 (WEA 2) 18:46 | 06:35 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 15:10 (WEA 2) 17:58 | 07:36 17:58 | 15:51 (WEA 2) 18:48 | 06:33 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 15:11 (WEA 2) 18:00 | 07:34 18:00 | 15:11 (WEA 2) 18:50 | 06:31 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 15:10 (WEA 2) 18:02 | 07:32 18:02 | 15:10 (WEA 2) 18:52 | 06:29 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 15:11 (WEA 2) 18:04 | 07:30 18:04 | 15:11 (WEA 2) 18:53 | 06:26 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 15:12 (WEA 2) 18:06 | 07:27 18:06 | 15:12 (WEA 2) 18:55 | 06:24 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 15:12 (WEA 2) 18:07 | 07:25 18:07 | 15:12 (WEA 2) 18:57 | 06:22 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 15:12 (WEA 2) 18:09 | 07:23 18:09 | 15:12 (WEA 2) 18:58 | 06:19 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 15:14 (WEA 2) | | 15:14 (WEA 2) | 07:17 20:00 | 06:09 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 15:14 (WEA 2) | | 15:14 (WEA 2) | 07:15 20:02 | 06:07 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 15:15 (WEA 2) | | 15:15 (WEA 2) | 07:12 20:04 | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | | | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | 1158 | 277 | 196 | | | | |

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: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 10-SO - IP 10-SO
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | November | | Dezember | | |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----|--------------------------------|-----------------------------------|-----------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | | 08:18 16:25 | 37 14:50 (WEA 2) 15:27 (WEA 2) | |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | | 08:19 16:25 | 36 14:52 (WEA 2) 15:28 (WEA 2) | |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 10 | 14:59 (WEA 2) 15:09 (WEA 2) | 08:21 16:24 | 35 14:52 (WEA 2) 15:27 (WEA 2) |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:01 | 17 | 14:55 (WEA 2) 15:12 (WEA 2) | 08:22 16:23 | 35 14:53 (WEA 2) 15:28 (WEA 2) |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:50 20:13 | 07:39 19:03 | 07:34 16:59 | 22 | 14:53 (WEA 2) 15:15 (WEA 2) | 08:23 16:23 | 35 14:53 (WEA 2) 15:28 (WEA 2) |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 26 | 14:51 (WEA 2) 15:17 (WEA 2) | 08:25 16:22 | 33 14:54 (WEA 2) 15:27 (WEA 2) |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 28 | 14:50 (WEA 2) 15:18 (WEA 2) | 08:26 16:22 | 33 14:55 (WEA 2) 15:28 (WEA 2) |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 31 | 14:48 (WEA 2) 15:19 (WEA 2) | 08:27 16:22 | 32 14:56 (WEA 2) 15:28 (WEA 2) |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 32 | 14:48 (WEA 2) 15:20 (WEA 2) | 08:28 16:21 | 32 14:56 (WEA 2) 15:28 (WEA 2) |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 07:43 16:50 | 34 | 14:47 (WEA 2) 15:21 (WEA 2) | 08:29 16:21 | 31 14:57 (WEA 2) 15:28 (WEA 2) |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 36 | 14:46 (WEA 2) 15:22 (WEA 2) | 08:30 16:21 | 29 14:58 (WEA 2) 15:27 (WEA 2) |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 37 | 14:46 (WEA 2) 15:23 (WEA 2) | 08:32 16:21 | 29 14:59 (WEA 2) 15:28 (WEA 2) |
| 13 | 05:27 21:50 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 39 | 14:45 (WEA 2) 15:24 (WEA 2) | 08:33 16:21 | 29 15:00 (WEA 2) 15:29 (WEA 2) |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 39 | 14:45 (WEA 2) 15:24 (WEA 2) | 08:33 16:21 | 28 15:01 (WEA 2) 15:29 (WEA 2) |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 40 | 14:45 (WEA 2) 15:25 (WEA 2) | 08:34 16:21 | 27 15:01 (WEA 2) 15:28 (WEA 2) |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 40 | 14:45 (WEA 2) 15:25 (WEA 2) | 08:35 16:21 | 27 15:01 (WEA 2) 15:28 (WEA 2) |
| 17 | 05:32 21:46 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 41 | 14:45 (WEA 2) 15:26 (WEA 2) | 08:36 16:21 | 27 15:02 (WEA 2) 15:29 (WEA 2) |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 41 | 14:44 (WEA 2) 15:25 (WEA 2) | 08:37 16:21 | 26 15:03 (WEA 2) 15:29 (WEA 2) |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 07:59 16:37 | 41 | 14:45 (WEA 2) 15:26 (WEA 2) | 08:38 16:22 | 26 15:03 (WEA 2) 15:29 (WEA 2) |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 41 | 14:45 (WEA 2) 15:26 (WEA 2) | 08:38 16:22 | 26 15:04 (WEA 2) 15:30 (WEA 2) |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 41 | 14:45 (WEA 2) 15:26 (WEA 2) | 08:39 16:23 | 26 15:05 (WEA 2) 15:31 (WEA 2) |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 08:04 16:34 | 41 | 14:46 (WEA 2) 15:27 (WEA 2) | 08:39 16:23 | 26 15:05 (WEA 2) 15:31 (WEA 2) |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 41 | 14:46 (WEA 2) 15:27 (WEA 2) | 08:40 16:23 | 26 15:06 (WEA 2) 15:32 (WEA 2) |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 41 | 14:46 (WEA 2) 15:27 (WEA 2) | 08:40 16:24 | 26 15:06 (WEA 2) 15:32 (WEA 2) |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 08:09 16:30 | 40 | 14:47 (WEA 2) 15:27 (WEA 2) | 08:41 16:25 | 26 15:06 (WEA 2) 15:32 (WEA 2) |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 08:10 16:29 | 39 | 14:48 (WEA 2) 15:27 (WEA 2) | 08:41 16:25 | 27 15:06 (WEA 2) 15:33 (WEA 2) |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 08:12 16:29 | 40 | 14:48 (WEA 2) 15:28 (WEA 2) | 08:41 16:26 | 27 15:07 (WEA 2) 15:34 (WEA 2) |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 08:13 16:28 | 39 | 14:48 (WEA 2) 15:27 (WEA 2) | 08:41 16:27 | 27 15:08 (WEA 2) 15:35 (WEA 2) |
| 29 | 05:48 21:30 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 08:15 16:27 | 39 | 14:49 (WEA 2) 15:28 (WEA 2) | 08:42 16:28 | 28 15:08 (WEA 2) 15:36 (WEA 2) |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 08:16 16:26 | 38 | 14:50 (WEA 2) 15:28 (WEA 2) | 08:42 16:29 | 28 15:08 (WEA 2) 15:36 (WEA 2) |
| 31 | 05:51 21:26 | 06:41 20:25 | | 08:25 17:08 | | | | 08:42 16:30 | 29 15:08 (WEA 2) 15:37 (WEA 2) |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | 266 | | 243 | | |
| astr.max.mögl.Beschattung | | | | | 994 | | | 909 | |

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 | Schattenanfang (WEA mit erstem Schatten) | Schattende (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 10-SW - IP 10-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni |
|---------------------------|----------------|------------------------|----------------|------------------------|----------------|----------------|
| 1 | 08:42 16:31 | 15:05 (WEA 2) 17:19 | 08:15 17:19 | 15:15 (WEA 2) 18:11 | 07:10 20:05 | 06:05 21:43 |
| 2 | 08:42 16:32 | 15:05 (WEA 2) 17:21 | 08:13 17:21 | 15:16 (WEA 2) 18:13 | 07:08 20:07 | 06:03 21:44 |
| 3 | 08:41 16:33 | 15:06 (WEA 2) 17:23 | 08:11 17:23 | 15:17 (WEA 2) 18:15 | 07:05 20:09 | 06:01 21:45 |
| 4 | 08:41 16:34 | 15:06 (WEA 2) 17:25 | 08:10 17:25 | 15:19 (WEA 2) 18:16 | 07:03 20:10 | 05:59 21:46 |
| 5 | 08:41 16:35 | 15:06 (WEA 2) 17:26 | 08:08 17:26 | 15:21 (WEA 2) 18:18 | 07:01 20:12 | 05:57 21:47 |
| 6 | 08:41 16:37 | 15:05 (WEA 2) 17:28 | 08:06 17:28 | 15:23 (WEA 2) 18:20 | 06:58 20:14 | 05:55 21:48 |
| 7 | 08:40 16:38 | 15:06 (WEA 2) 17:30 | 08:05 17:30 | 15:26 (WEA 2) 18:22 | 06:56 20:16 | 05:54 21:49 |
| 8 | 08:40 16:39 | 15:06 (WEA 2) 17:32 | 08:03 17:32 | 15:39 (WEA 2) 18:24 | 06:54 20:17 | 05:52 21:50 |
| 9 | 08:39 16:41 | 15:06 (WEA 2) 17:34 | 08:01 17:34 | 07:05 18:25 | 06:52 20:19 | 05:50 21:51 |
| 10 | 08:39 16:42 | 15:06 (WEA 2) 17:36 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:51 |
| 11 | 08:38 16:43 | 15:06 (WEA 2) 17:38 | 07:58 17:38 | 06:59 18:29 | 06:47 20:23 | 05:47 21:52 |
| 12 | 08:38 16:45 | 15:06 (WEA 2) 17:40 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:53 |
| 13 | 08:37 16:46 | 15:06 (WEA 2) 17:41 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:54 |
| 14 | 08:36 16:48 | 15:06 (WEA 2) 17:43 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:54 |
| 15 | 08:35 16:50 | 15:06 (WEA 2) 17:45 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:55 |
| 16 | 08:34 16:51 | 15:06 (WEA 2) 17:47 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:55 |
| 17 | 08:34 16:53 | 15:07 (WEA 2) 17:49 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:56 |
| 18 | 08:33 16:54 | 15:07 (WEA 2) 17:51 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:56 |
| 19 | 08:32 16:56 | 15:07 (WEA 2) 17:53 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:57 |
| 20 | 08:31 16:58 | 15:08 (WEA 2) 17:54 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:57 |
| 21 | 08:29 16:59 | 15:08 (WEA 2) 17:56 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:57 |
| 22 | 08:28 17:01 | 15:08 (WEA 2) 17:58 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:57 |
| 23 | 08:27 17:03 | 15:09 (WEA 2) 18:00 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:57 |
| 24 | 08:26 17:05 | 15:09 (WEA 2) 18:02 | 07:32 18:02 | 06:29 18:52 | 06:19 20:45 | 05:28 21:58 |
| 25 | 08:25 17:06 | 15:10 (WEA 2) 18:04 | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:58 |
| 26 | 08:23 17:08 | 15:11 (WEA 2) 18:06 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:58 |
| 27 | 08:22 17:10 | 15:11 (WEA 2) 18:07 | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:58 |
| 28 | 08:21 17:12 | 15:11 (WEA 2) 18:09 | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:57 |
| 29 | 08:19 17:14 | 15:12 (WEA 2) | | 07:17 20:00 | 06:09 20:53 | 05:22 21:57 |
| 30 | 08:18 17:15 | 15:12 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:57 |
| 31 | 08:16 17:17 | 15:14 (WEA 2) | | 07:12 20:04 | | 05:20 |
| Sonnenscheinstunden | 258 | 277 | | 367 | 416 | 500 |
| astr.max.mögl.Beschattung | 1172 | 175 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 10-SW - IP 10-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | November | | Dezember | |
|---------------------------|----------------|----------------|----------------|----------------|----------------|-----------------------------------|----------------|-----------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | | 08:18 16:25 | 38 14:48 (WEA 2) 15:26 (WEA 2) |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | | 08:19 16:25 | 38 14:49 (WEA 2) 15:27 (WEA 2) |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | | 08:21 16:24 | 37 14:49 (WEA 2) 15:26 (WEA 2) |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:01 | 14 14:55 (WEA 2) 15:09 (WEA 2) | 08:22 16:23 | 36 14:51 (WEA 2) 15:27 (WEA 2) |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:50 20:13 | 07:39 19:03 | 07:34 16:59 | 20 14:52 (WEA 2) 15:12 (WEA 2) | 08:23 16:23 | 35 14:51 (WEA 2) 15:26 (WEA 2) |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 24 14:50 (WEA 2) 15:14 (WEA 2) | 08:25 16:22 | 35 14:51 (WEA 2) 15:26 (WEA 2) |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 27 14:49 (WEA 2) 15:16 (WEA 2) | 08:26 16:22 | 34 14:53 (WEA 2) 15:27 (WEA 2) |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 30 14:47 (WEA 2) 15:17 (WEA 2) | 08:27 16:22 | 34 14:53 (WEA 2) 15:27 (WEA 2) |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 32 14:46 (WEA 2) 15:18 (WEA 2) | 08:28 16:21 | 32 14:54 (WEA 2) 15:26 (WEA 2) |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 07:43 16:50 | 34 14:45 (WEA 2) 15:19 (WEA 2) | 08:29 16:21 | 32 14:54 (WEA 2) 15:26 (WEA 2) |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 35 14:45 (WEA 2) 15:20 (WEA 2) | 08:30 16:21 | 31 14:55 (WEA 2) 15:26 (WEA 2) |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 37 14:44 (WEA 2) 15:21 (WEA 2) | 08:32 16:21 | 30 14:57 (WEA 2) 15:27 (WEA 2) |
| 13 | 05:27 21:50 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 38 14:44 (WEA 2) 15:22 (WEA 2) | 08:33 16:21 | 31 14:57 (WEA 2) 15:28 (WEA 2) |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 38 14:44 (WEA 2) 15:22 (WEA 2) | 08:33 16:21 | 30 14:58 (WEA 2) 15:28 (WEA 2) |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 39 14:44 (WEA 2) 15:23 (WEA 2) | 08:34 16:21 | 29 14:58 (WEA 2) 15:27 (WEA 2) |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 40 14:43 (WEA 2) 15:23 (WEA 2) | 08:35 16:21 | 28 14:59 (WEA 2) 15:27 (WEA 2) |
| 17 | 05:32 21:46 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 41 14:43 (WEA 2) 15:24 (WEA 2) | 08:36 16:21 | 29 14:59 (WEA 2) 15:28 (WEA 2) |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 40 14:43 (WEA 2) 15:23 (WEA 2) | 08:37 16:21 | 29 15:00 (WEA 2) 15:29 (WEA 2) |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 07:59 16:37 | 41 14:43 (WEA 2) 15:24 (WEA 2) | 08:38 16:22 | 28 15:00 (WEA 2) 15:28 (WEA 2) |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 41 14:43 (WEA 2) 15:24 (WEA 2) | 08:38 16:22 | 28 15:01 (WEA 2) 15:29 (WEA 2) |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 41 14:44 (WEA 2) 15:25 (WEA 2) | 08:39 16:23 | 28 15:02 (WEA 2) 15:30 (WEA 2) |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 08:04 16:34 | 41 14:44 (WEA 2) 15:25 (WEA 2) | 08:39 16:23 | 28 15:02 (WEA 2) 15:30 (WEA 2) |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 42 14:44 (WEA 2) 15:26 (WEA 2) | 08:40 16:23 | 28 15:03 (WEA 2) 15:31 (WEA 2) |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 41 14:44 (WEA 2) 15:26 (WEA 2) | 08:40 16:24 | 28 15:03 (WEA 2) 15:31 (WEA 2) |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 08:09 16:30 | 40 14:45 (WEA 2) 15:25 (WEA 2) | 08:41 16:25 | 28 15:03 (WEA 2) 15:31 (WEA 2) |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 08:10 16:29 | 41 14:45 (WEA 2) 15:26 (WEA 2) | 08:41 16:25 | 29 15:03 (WEA 2) 15:32 (WEA 2) |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 08:12 16:29 | 40 14:46 (WEA 2) 15:26 (WEA 2) | 08:41 16:26 | 28 15:05 (WEA 2) 15:33 (WEA 2) |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 08:13 16:28 | 40 14:46 (WEA 2) 15:26 (WEA 2) | 08:41 16:27 | 29 15:05 (WEA 2) 15:34 (WEA 2) |
| 29 | 05:48 21:30 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 08:15 16:27 | 39 14:47 (WEA 2) 15:26 (WEA 2) | 08:42 16:28 | 30 15:05 (WEA 2) 15:35 (WEA 2) |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 08:16 16:26 | 39 14:48 (WEA 2) 15:27 (WEA 2) | 08:42 16:29 | 30 15:05 (WEA 2) 15:35 (WEA 2) |
| 31 | 05:51 21:26 | 06:41 20:25 | | 08:25 17:08 | | | 08:42 16:30 | 31 15:05 (WEA 2) 15:36 (WEA 2) |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | 266 | | 243 | 961 |
| astr.max.mögl.Beschattung | | | | | 975 | | | 961 |

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 | Schattenanfang (WEA mit erstem Schatten) | Schattende (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 11-SO - IP 11-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|------------------------|----------------|------------------------|----------------|----------------|-----|
| 1 | 08:42 16:31 | 15:16 (WEA 2) 17:19 | 08:15 17:19 | 15:21 (WEA 2) 18:11 | 07:10 20:05 | 06:05 21:43 | |
| 2 | 08:42 16:32 | 15:16 (WEA 2) 17:21 | 08:13 17:21 | 15:21 (WEA 2) 18:13 | 07:08 20:07 | 06:03 21:44 | |
| 3 | 08:41 16:33 | 15:16 (WEA 2) 17:23 | 08:11 17:23 | 15:22 (WEA 2) 18:15 | 07:05 20:09 | 06:01 21:45 | |
| 4 | 08:41 16:34 | 15:16 (WEA 2) 17:25 | 08:10 17:25 | 15:24 (WEA 2) 18:16 | 07:03 20:10 | 05:59 21:46 | |
| 5 | 08:41 16:35 | 15:16 (WEA 2) 17:26 | 08:08 17:26 | 15:25 (WEA 2) 18:18 | 07:01 20:12 | 05:57 21:47 | |
| 6 | 08:41 16:37 | 15:15 (WEA 2) 17:28 | 08:06 17:28 | 15:26 (WEA 2) 18:20 | 06:58 20:14 | 05:55 21:48 | |
| 7 | 08:40 16:38 | 15:16 (WEA 2) 17:30 | 08:05 17:30 | 15:28 (WEA 2) 18:22 | 06:56 20:16 | 05:54 21:49 | |
| 8 | 08:40 16:39 | 15:15 (WEA 2) 17:32 | 08:03 17:32 | 15:30 (WEA 2) 18:24 | 06:54 20:17 | 05:52 21:50 | |
| 9 | 08:39 16:41 | 15:16 (WEA 2) 17:34 | 08:01 17:34 | 15:34 (WEA 2) 18:25 | 06:52 20:19 | 05:50 21:51 | |
| 10 | 08:39 16:42 | 15:16 (WEA 2) 17:36 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:51 | |
| 11 | 08:38 16:43 | 15:15 (WEA 2) 17:38 | 07:58 17:38 | 06:59 18:29 | 06:47 20:23 | 05:47 21:52 | |
| 12 | 08:38 16:45 | 15:15 (WEA 2) 17:40 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:53 | |
| 13 | 08:37 16:46 | 15:15 (WEA 2) 17:41 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:54 | |
| 14 | 08:36 16:48 | 15:15 (WEA 2) 17:43 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:54 | |
| 15 | 08:35 16:50 | 15:15 (WEA 2) 17:45 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:55 | |
| 16 | 08:34 16:51 | 15:15 (WEA 2) 17:47 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:55 | |
| 17 | 08:34 16:53 | 15:15 (WEA 2) 17:49 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:56 | |
| 18 | 08:33 16:54 | 15:15 (WEA 2) 17:51 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:56 | |
| 19 | 08:32 16:56 | 15:16 (WEA 2) 17:53 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:57 | |
| 20 | 08:31 16:58 | 15:16 (WEA 2) 17:54 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:57 | |
| 21 | 08:29 16:59 | 15:15 (WEA 2) 17:56 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:57 | |
| 22 | 08:28 17:01 | 15:16 (WEA 2) 17:58 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:57 | |
| 23 | 08:27 17:03 | 15:16 (WEA 2) 18:00 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:57 | |
| 24 | 08:26 17:05 | 15:16 (WEA 2) 18:02 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:58 | |
| 25 | 08:25 17:06 | 15:17 (WEA 2) 18:04 | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:58 | |
| 26 | 08:23 17:08 | 15:18 (WEA 2) 18:06 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:58 | |
| 27 | 08:22 17:10 | 15:18 (WEA 2) 18:07 | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:58 | |
| 28 | 08:21 17:12 | 15:18 (WEA 2) 18:09 | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:57 | |
| 29 | 08:19 17:14 | 15:19 (WEA 2) 18:09 | 07:21 18:09 | 06:17 20:00 | 06:09 20:53 | 05:22 21:57 | |
| 30 | 08:18 17:15 | 15:19 (WEA 2) 18:09 | 07:20 18:09 | 06:15 20:02 | 06:07 20:55 | 05:21 21:57 | |
| 31 | 08:16 17:17 | 15:20 (WEA 2) 18:09 | 07:19 18:09 | 06:13 20:04 | 06:05 21:42 | 05:20 21:57 | |
| Sonnenscheinstunden | | 258 | 277 | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | | 1084 | 240 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 11-SO - IP 11-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | | Dezember | |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----|------------------------|-----------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | | 08:18 16:25 | 34 14:57 (WEA 2) 15:31 (WEA 2) |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 12 | 15:03 (WEA 2) 16:25 | 33 14:59 (WEA 2) 15:32 (WEA 2) |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 18 | 15:00 (WEA 2) 16:24 | 32 14:59 (WEA 2) 15:31 (WEA 2) |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:01 | 23 | 14:57 (WEA 2) 16:23 | 31 15:00 (WEA 2) 15:31 (WEA 2) |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:50 20:13 | 07:39 19:03 | 07:34 16:59 | 26 | 14:56 (WEA 2) 16:23 | 30 15:01 (WEA 2) 15:31 (WEA 2) |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 28 | 14:55 (WEA 2) 16:22 | 29 15:01 (WEA 2) 15:30 (WEA 2) |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 32 | 14:53 (WEA 2) 16:22 | 28 15:03 (WEA 2) 15:31 (WEA 2) |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 33 | 14:53 (WEA 2) 16:22 | 27 15:04 (WEA 2) 15:31 (WEA 2) |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 35 | 14:52 (WEA 2) 16:21 | 26 15:04 (WEA 2) 15:30 (WEA 2) |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 07:43 16:50 | 36 | 14:51 (WEA 2) 16:21 | 25 15:05 (WEA 2) 15:30 (WEA 2) |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 37 | 14:51 (WEA 2) 16:21 | 24 15:06 (WEA 2) 15:30 (WEA 2) |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 38 | 14:51 (WEA 2) 16:21 | 23 15:08 (WEA 2) 15:31 (WEA 2) |
| 13 | 05:27 21:50 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 38 | 14:51 (WEA 2) 16:21 | 22 15:09 (WEA 2) 15:31 (WEA 2) |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 40 | 14:50 (WEA 2) 16:21 | 22 15:09 (WEA 2) 15:31 (WEA 2) |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 40 | 14:50 (WEA 2) 16:21 | 21 15:09 (WEA 2) 15:30 (WEA 2) |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 40 | 14:51 (WEA 2) 16:21 | 20 15:10 (WEA 2) 15:30 (WEA 2) |
| 17 | 05:32 21:46 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 40 | 14:51 (WEA 2) 16:21 | 19 15:11 (WEA 2) 15:30 (WEA 2) |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 40 | 14:50 (WEA 2) 16:21 | 19 15:12 (WEA 2) 15:31 (WEA 2) |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 07:59 16:37 | 41 | 14:50 (WEA 2) 16:22 | 18 15:12 (WEA 2) 15:30 (WEA 2) |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 40 | 14:51 (WEA 2) 16:22 | 18 15:13 (WEA 2) 15:31 (WEA 2) |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 40 | 14:51 (WEA 2) 16:23 | 18 15:14 (WEA 2) 15:32 (WEA 2) |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 08:04 16:34 | 39 | 14:52 (WEA 2) 16:23 | 18 15:14 (WEA 2) 15:32 (WEA 2) |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 39 | 14:53 (WEA 2) 16:23 | 18 15:15 (WEA 2) 15:33 (WEA 2) |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 39 | 14:52 (WEA 2) 16:24 | 18 15:15 (WEA 2) 15:33 (WEA 2) |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 08:09 16:30 | 38 | 14:53 (WEA 2) 16:25 | 19 15:15 (WEA 2) 15:34 (WEA 2) |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 08:10 16:29 | 38 | 14:54 (WEA 2) 16:25 | 19 15:15 (WEA 2) 15:34 (WEA 2) |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 08:12 16:29 | 37 | 14:55 (WEA 2) 16:26 | 19 15:16 (WEA 2) 15:36 (WEA 2) |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 08:13 16:28 | 36 | 14:55 (WEA 2) 16:27 | 21 15:16 (WEA 2) 15:37 (WEA 2) |
| 29 | 05:48 21:30 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 08:15 16:27 | 35 | 14:56 (WEA 2) 16:28 | 21 15:16 (WEA 2) 15:37 (WEA 2) |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 08:16 16:26 | 35 | 14:57 (WEA 2) 16:29 | 22 15:16 (WEA 2) 15:38 (WEA 2) |
| 31 | 05:51 21:26 | 06:41 20:25 | | 07:25 17:08 | | | 08:42 16:30 | 22 15:17 (WEA 2) 15:39 (WEA 2) |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | 266 | | 243 | |
| astr.max.mögl.Beschattung | | | | | 1013 | | | 717 |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 11-SW - IP 11-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | | |
|---------------------------|----------------|--------------------------------|----------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 15:12 (WEA 2) 15:40 (WEA 2) | 08:15 17:19 | 15:20 (WEA 2) 15:54 (WEA 2) | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 15:12 (WEA 2) 15:41 (WEA 2) | 08:13 17:21 | 15:20 (WEA 2) 15:53 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 15:13 (WEA 2) 15:42 (WEA 2) | 08:11 17:23 | 15:21 (WEA 2) 15:52 (WEA 2) | 07:17 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 15:12 (WEA 2) 15:42 (WEA 2) | 08:10 17:25 | 15:23 (WEA 2) 15:52 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 15:12 (WEA 2) 15:44 (WEA 2) | 08:08 17:26 | 15:25 (WEA 2) 15:50 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 15:12 (WEA 2) 15:44 (WEA 2) | 08:06 17:28 | 15:26 (WEA 2) 15:49 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 15:13 (WEA 2) 15:45 (WEA 2) | 08:05 17:30 | 15:29 (WEA 2) 15:46 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 15:12 (WEA 2) 15:46 (WEA 2) | 08:03 17:32 | 15:32 (WEA 2) 15:43 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 15:13 (WEA 2) 15:47 (WEA 2) | 08:01 17:34 | 15:33 (WEA 2) 15:44 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 15:13 (WEA 2) 15:48 (WEA 2) | 07:59 17:36 | 15:34 (WEA 2) 15:45 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 15:12 (WEA 2) 15:48 (WEA 2) | 07:58 17:38 | 15:35 (WEA 2) 15:46 (WEA 2) | 06:59 18:29 | 06:47 20:23 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 15:12 (WEA 2) 15:49 (WEA 2) | 07:56 17:40 | 15:36 (WEA 2) 15:47 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 15:12 (WEA 2) 15:49 (WEA 2) | 07:54 17:41 | 15:37 (WEA 2) 15:48 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 15:12 (WEA 2) 15:50 (WEA 2) | 07:52 17:43 | 15:38 (WEA 2) 15:49 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 15:12 (WEA 2) 15:51 (WEA 2) | 07:50 17:45 | 15:39 (WEA 2) 15:50 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 15:12 (WEA 2) 15:51 (WEA 2) | 07:48 17:47 | 15:40 (WEA 2) 15:51 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 15:13 (WEA 2) 15:52 (WEA 2) | 07:46 17:49 | 15:41 (WEA 2) 15:52 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 15:13 (WEA 2) 15:53 (WEA 2) | 07:44 17:51 | 15:42 (WEA 2) 15:53 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 15:13 (WEA 2) 15:53 (WEA 2) | 07:42 17:53 | 15:43 (WEA 2) 15:54 (WEA 2) | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:57 |
| 20 | 08:31 16:58 | 15:14 (WEA 2) 15:54 (WEA 2) | 07:40 17:54 | 15:44 (WEA 2) 15:55 (WEA 2) | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 15:13 (WEA 2) 15:54 (WEA 2) | 07:38 17:56 | 15:45 (WEA 2) 15:56 (WEA 2) | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 15:14 (WEA 2) 15:54 (WEA 2) | 07:36 17:58 | 15:46 (WEA 2) 15:57 (WEA 2) | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 15:14 (WEA 2) 15:55 (WEA 2) | 07:34 18:00 | 15:47 (WEA 2) 15:58 (WEA 2) | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 15:14 (WEA 2) 15:55 (WEA 2) | 07:32 18:02 | 15:48 (WEA 2) 15:59 (WEA 2) | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 15:15 (WEA 2) 15:55 (WEA 2) | 07:30 18:04 | 15:49 (WEA 2) 16:00 (WEA 2) | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 15:16 (WEA 2) 15:56 (WEA 2) | 07:27 18:06 | 15:50 (WEA 2) 16:01 (WEA 2) | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 15:16 (WEA 2) 15:55 (WEA 2) | 07:25 18:07 | 15:51 (WEA 2) 16:02 (WEA 2) | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 15:16 (WEA 2) 15:55 (WEA 2) | 07:23 18:09 | 15:52 (WEA 2) 16:03 (WEA 2) | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 15:17 (WEA 2) 15:55 (WEA 2) | 18:09 | 15:53 (WEA 2) 16:04 (WEA 2) | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 15:18 (WEA 2) 15:54 (WEA 2) | | 15:54 (WEA 2) 16:05 (WEA 2) | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 15:19 (WEA 2) 15:55 (WEA 2) | | 15:55 (WEA 2) | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 1131 | | 203 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 11-SW - IP 11-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | November | | Dezember | |
|---------------------------|-------|--------|-----------|---------|----------|----|---------------|------------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | | 08:18 | 14:55 (WEA 2) |
| | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | | 16:25 | 35 15:30 (WEA 2) |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | | 08:19 | 14:56 (WEA 2) |
| | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | | 16:25 | 35 15:31 (WEA 2) |
| 3 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | | 15:01 (WEA 2) | 08:21 14:56 (WEA 2) |
| | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 12 | 15:13 (WEA 2) | 16:24 34 15:30 (WEA 2) |
| 4 | 05:18 | 05:58 | 06:48 | 07:37 | 07:32 | | 14:58 (WEA 2) | 08:22 14:57 (WEA 2) |
| | 21:56 | 21:20 | 20:15 | 19:06 | 17:01 | 18 | 15:16 (WEA 2) | 16:23 34 15:31 (WEA 2) |
| 5 | 05:19 | 05:59 | 06:50 | 07:39 | 07:34 | | 14:56 (WEA 2) | 08:23 14:58 (WEA 2) |
| | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 23 | 15:19 (WEA 2) | 16:23 32 15:30 (WEA 2) |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | | 14:54 (WEA 2) | 08:25 14:58 (WEA 2) |
| | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 26 | 15:20 (WEA 2) | 16:22 32 15:30 (WEA 2) |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | | 14:53 (WEA 2) | 08:26 15:00 (WEA 2) |
| | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 29 | 15:22 (WEA 2) | 16:22 31 15:31 (WEA 2) |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | | 14:52 (WEA 2) | 08:27 15:00 (WEA 2) |
| | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 31 | 15:23 (WEA 2) | 16:22 30 15:30 (WEA 2) |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | | 14:51 (WEA 2) | 08:28 15:01 (WEA 2) |
| | 21:53 | 21:11 | 20:04 | 18:54 | 16:52 | 33 | 15:24 (WEA 2) | 16:21 29 15:30 (WEA 2) |
| 10 | 05:24 | 06:07 | 06:58 | 07:48 | 07:43 | | 14:50 (WEA 2) | 08:29 15:01 (WEA 2) |
| | 21:52 | 21:09 | 20:02 | 18:52 | 16:50 | 35 | 15:25 (WEA 2) | 16:21 29 15:30 (WEA 2) |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | 07:44 | | 14:50 (WEA 2) | 08:30 15:02 (WEA 2) |
| | 21:51 | 21:07 | 19:59 | 18:50 | 16:49 | 36 | 15:26 (WEA 2) | 16:21 28 15:30 (WEA 2) |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | 07:46 | | 14:49 (WEA 2) | 08:32 15:04 (WEA 2) |
| | 21:50 | 21:05 | 19:57 | 18:47 | 16:47 | 37 | 15:26 (WEA 2) | 16:21 27 15:31 (WEA 2) |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | 07:48 | | 14:49 (WEA 2) | 08:33 15:04 (WEA 2) |
| | 21:50 | 21:03 | 19:55 | 18:45 | 16:46 | 38 | 15:27 (WEA 2) | 16:21 27 15:31 (WEA 2) |
| 14 | 05:28 | 06:14 | 07:04 | 07:54 | 07:50 | | 14:49 (WEA 2) | 08:33 15:05 (WEA 2) |
| | 21:49 | 21:01 | 19:52 | 18:43 | 16:44 | 39 | 15:28 (WEA 2) | 16:21 26 15:31 (WEA 2) |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | 07:52 | | 14:49 (WEA 2) | 08:34 15:05 (WEA 2) |
| | 21:48 | 20:59 | 19:50 | 18:41 | 16:43 | 39 | 15:28 (WEA 2) | 16:21 25 15:30 (WEA 2) |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | 07:53 | | 14:49 (WEA 2) | 08:35 15:06 (WEA 2) |
| | 21:47 | 20:57 | 19:48 | 18:39 | 16:41 | 40 | 15:29 (WEA 2) | 16:21 25 15:31 (WEA 2) |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | 07:55 | | 14:49 (WEA 2) | 08:36 15:07 (WEA 2) |
| | 21:46 | 20:55 | 19:45 | 18:36 | 16:40 | 40 | 15:29 (WEA 2) | 16:21 24 15:31 (WEA 2) |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | 07:57 | | 14:48 (WEA 2) | 08:37 15:08 (WEA 2) |
| | 21:44 | 20:53 | 19:43 | 18:34 | 16:39 | 40 | 15:28 (WEA 2) | 16:21 24 15:32 (WEA 2) |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | 07:59 | | 14:48 (WEA 2) | 08:38 15:08 (WEA 2) |
| | 21:43 | 20:51 | 19:41 | 18:32 | 16:37 | 41 | 15:29 (WEA 2) | 16:22 23 15:31 (WEA 2) |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | 08:00 | | 14:49 (WEA 2) | 08:38 15:09 (WEA 2) |
| | 21:42 | 20:49 | 19:38 | 18:30 | 16:36 | 40 | 15:29 (WEA 2) | 16:22 23 15:32 (WEA 2) |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | 08:02 | | 14:49 (WEA 2) | 08:39 15:10 (WEA 2) |
| | 21:41 | 20:46 | 19:36 | 18:28 | 16:35 | 41 | 15:30 (WEA 2) | 16:23 23 15:33 (WEA 2) |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | 08:04 | | 14:50 (WEA 2) | 08:39 15:10 (WEA 2) |
| | 21:40 | 20:44 | 19:34 | 18:26 | 16:34 | 40 | 15:30 (WEA 2) | 16:23 23 15:33 (WEA 2) |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | 08:05 | | 14:50 (WEA 2) | 08:40 15:11 (WEA 2) |
| | 21:38 | 20:42 | 19:31 | 18:24 | 16:33 | 40 | 15:30 (WEA 2) | 16:23 23 15:34 (WEA 2) |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | 08:07 | | 14:50 (WEA 2) | 08:40 15:11 (WEA 2) |
| | 21:37 | 20:40 | 19:29 | 18:22 | 16:31 | 40 | 15:30 (WEA 2) | 16:24 23 15:34 (WEA 2) |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | 08:09 | | 14:51 (WEA 2) | 08:41 15:11 (WEA 2) |
| | 21:35 | 20:38 | 19:26 | 17:20 | 16:30 | 39 | 15:30 (WEA 2) | 16:25 24 15:35 (WEA 2) |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | 08:10 | | 14:52 (WEA 2) | 08:41 15:11 (WEA 2) |
| | 21:34 | 20:36 | 19:24 | 17:18 | 16:29 | 38 | 15:30 (WEA 2) | 16:25 24 15:35 (WEA 2) |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | 08:12 | | 14:52 (WEA 2) | 08:41 15:12 (WEA 2) |
| | 21:33 | 20:33 | 19:22 | 17:16 | 16:29 | 39 | 15:31 (WEA 2) | 16:26 25 15:37 (WEA 2) |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | 08:13 | | 14:52 (WEA 2) | 08:41 15:12 (WEA 2) |
| | 21:31 | 20:31 | 19:19 | 17:14 | 16:28 | 38 | 15:30 (WEA 2) | 16:27 25 15:37 (WEA 2) |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | 08:15 | | 14:53 (WEA 2) | 08:42 15:12 (WEA 2) |
| | 21:30 | 20:29 | 19:17 | 17:12 | 16:27 | 37 | 15:30 (WEA 2) | 16:28 26 15:38 (WEA 2) |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | 08:16 | | 14:54 (WEA 2) | 08:42 15:12 (WEA 2) |
| | 21:28 | 20:27 | 19:15 | 17:10 | 16:26 | 37 | 15:31 (WEA 2) | 16:29 27 15:39 (WEA 2) |
| 31 | 05:51 | 06:41 | | 07:25 | | | 08:42 | 15:13 (WEA 2) |
| | 21:26 | 20:25 | | 17:08 | | | 16:30 | 27 15:40 (WEA 2) |
| Sonnenscheinstunden | 503 | 454 | 381 | | 266 | | 243 | |
| astr.max.mögl.Beschattung | | | | | 986 | | | 843 |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 12-SO - IP 12-SO
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|-------------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 15:56 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 15:55 (WEA 2) 16:31 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 15:55 (WEA 2) 16:32 (WEA 2) | 07:17 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 15:55 (WEA 2) 16:33 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 15:55 (WEA 2) 16:33 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 15:54 (WEA 2) 16:34 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 15:54 (WEA 2) 16:34 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 15:54 (WEA 2) 16:34 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 15:54 (WEA 2) 16:34 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 15:55 (WEA 2) 16:35 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 15:55 (WEA 2) 16:35 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 15:55 (WEA 2) 16:34 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 15:56 (WEA 2) 16:34 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 15:56 (WEA 2) 16:34 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 15:57 (WEA 2) 16:33 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 15:58 (WEA 2) 16:32 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 15:58 (WEA 2) 16:31 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 15:59 (WEA 2) 16:30 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:00 (WEA 2) 16:28 (WEA 2) | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:02 (WEA 2) 16:27 (WEA 2) | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:04 (WEA 2) 16:25 (WEA 2) | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 16:07 (WEA 2) 16:22 (WEA 2) | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 16:10 (WEA 2) 16:13 (WEA 2) | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 3 16:05 (WEA 2) 13 16:18 (WEA 2) | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 16:03 (WEA 2) 18 16:21 (WEA 2) | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 16:02 (WEA 2) 21 16:23 (WEA 2) | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 16:00 (WEA 2) 25 16:25 (WEA 2) | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 15:59 (WEA 2) 27 16:26 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 15:58 (WEA 2) 30 16:28 (WEA 2) | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 15:57 (WEA 2) 31 16:28 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 15:57 (WEA 2) 33 16:30 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 201 | 762 | | | | | |

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: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 12-SO - IP 12-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember | |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|--------------------------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 15:24 (WEA 2) 16:04 (WEA 2) | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 15:24 (WEA 2) 16:04 (WEA 2) | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 15:24 (WEA 2) 16:04 (WEA 2) | 08:21 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | 15:24 (WEA 2) 16:03 (WEA 2) | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 15:24 (WEA 2) 16:03 (WEA 2) | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 15:24 (WEA 2) 16:03 (WEA 2) | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | 15:25 (WEA 2) 16:03 (WEA 2) | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | 15:26 (WEA 2) 16:02 (WEA 2) | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | 15:26 (WEA 2) 16:02 (WEA 2) | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | | 07:43 16:50 | 15:27 (WEA 2) 16:02 (WEA 2) | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | | 07:44 16:49 | 15:28 (WEA 2) 16:01 (WEA 2) | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | | 07:46 16:47 | 15:29 (WEA 2) 16:00 (WEA 2) | 08:32 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | | 07:48 16:46 | 15:30 (WEA 2) 16:00 (WEA 2) | 08:33 16:21 |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | | 07:50 16:44 | 15:32 (WEA 2) 15:59 (WEA 2) | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | | 07:52 16:43 | 15:33 (WEA 2) 15:58 (WEA 2) | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | | 07:53 16:41 | 15:35 (WEA 2) 15:56 (WEA 2) | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | | 07:55 16:40 | 15:37 (WEA 2) 15:55 (WEA 2) | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | | 07:57 16:39 | 15:39 (WEA 2) 15:52 (WEA 2) | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 8 | 07:58 16:49 (WEA 2) | 15:44 (WEA 2) 15:47 (WEA 2) | 08:38 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 16 | 16:37 (WEA 2) 16:53 (WEA 2) | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 22 | 16:34 (WEA 2) 16:56 (WEA 2) | 08:02 16:35 | 08:39 16:23 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 26 | 16:32 (WEA 2) 16:58 (WEA 2) | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 29 | 16:30 (WEA 2) 16:59 (WEA 2) | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 31 | 16:29 (WEA 2) 17:00 (WEA 2) | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 33 | 15:28 (WEA 2) 16:01 (WEA 2) | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 35 | 15:27 (WEA 2) 16:02 (WEA 2) | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 37 | 15:26 (WEA 2) 16:03 (WEA 2) | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 37 | 15:26 (WEA 2) 16:03 (WEA 2) | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 39 | 15:25 (WEA 2) 16:04 (WEA 2) | 08:15 16:27 | 08:42 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 39 | 15:24 (WEA 2) 16:03 (WEA 2) | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | 08:25 17:08 | 39 | 15:24 (WEA 2) 16:03 (WEA 2) | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | 391 | | 583 | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 12-SW - IP 12-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|----------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 15:54 (WEA 2) 16:30 (WEA 2) | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 15:53 (WEA 2) 16:30 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 15:53 (WEA 2) 16:30 (WEA 2) | 07:17 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 15:53 (WEA 2) 16:32 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 15:53 (WEA 2) 16:32 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 15:52 (WEA 2) 16:32 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 15:52 (WEA 2) 16:32 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 15:52 (WEA 2) 16:32 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 15:52 (WEA 2) 16:32 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 15:53 (WEA 2) 16:33 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 15:53 (WEA 2) 16:33 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 15:54 (WEA 2) 16:33 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 15:54 (WEA 2) 16:32 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 15:55 (WEA 2) 16:32 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 15:56 (WEA 2) 16:31 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 15:56 (WEA 2) 16:30 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 15:56 (WEA 2) 16:29 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 15:58 (WEA 2) 16:27 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 15:59 (WEA 2) 16:26 (WEA 2) | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:31 16:58 | 07:40 17:54 | 16:01 (WEA 2) 16:24 (WEA 2) | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:04 (WEA 2) 16:22 (WEA 2) | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 16:08 (WEA 2) 16:18 (WEA 2) | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 16:03 (WEA 2) 16:16 (WEA 2) | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 16:01 (WEA 2) 16:18 (WEA 2) | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:30 18:04 | 15:59 (WEA 2) 16:21 (WEA 2) | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | 15:59 (WEA 2) 16:23 (WEA 2) | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 15:57 (WEA 2) 16:24 (WEA 2) | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | 15:56 (WEA 2) 16:25 (WEA 2) | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 07:21 18:09 | 15:56 (WEA 2) 16:27 (WEA 2) | 06:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 07:20 18:09 | 15:55 (WEA 2) 16:28 (WEA 2) | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 07:19 18:09 | 15:55 (WEA 2) 16:29 (WEA 2) | 07:12 20:04 | 06:05 20:57 | 05:20 21:42 | 05:15 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 233 | 751 | | | | | |

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: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 12-SW - IP 12-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|-------|--------|-----------|---------|--------------------|----------|----------------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 15:22 (WEA 2) 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 40 16:02 (WEA 2) 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 15:22 (WEA 2) 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 40 16:02 (WEA 2) 16:25 |
| 3 | 05:18 | 05:56 | 06:46 | 07:36 | | 07:30 | 15:22 (WEA 2) 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 40 16:02 (WEA 2) 16:24 |
| 4 | 05:18 | 05:58 | 06:48 | 07:37 | | 07:32 | 15:22 (WEA 2) 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:01 | 40 16:02 (WEA 2) 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 15:22 (WEA 2) 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 40 16:02 (WEA 2) 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 15:22 (WEA 2) 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 40 16:02 (WEA 2) 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 15:23 (WEA 2) 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 39 16:02 (WEA 2) 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 15:23 (WEA 2) 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 38 16:01 (WEA 2) 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 15:24 (WEA 2) 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 37 16:01 (WEA 2) 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:48 | | 07:43 | 15:25 (WEA 2) 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 35 16:00 (WEA 2) 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 15:26 (WEA 2) 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 34 16:00 (WEA 2) 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 15:26 (WEA 2) 08:32 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 33 15:59 (WEA 2) 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 15:28 (WEA 2) 08:33 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | 31 15:59 (WEA 2) 16:21 |
| 14 | 05:28 | 06:14 | 07:04 | 07:54 | | 07:50 | 15:29 (WEA 2) 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | 29 15:58 (WEA 2) 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 15:30 (WEA 2) 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | 27 15:57 (WEA 2) 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 15:32 (WEA 2) 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | 24 15:56 (WEA 2) 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 15:33 (WEA 2) 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | 22 15:55 (WEA 2) 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 15:35 (WEA 2) 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 17 15:52 (WEA 2) 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 15:37 (WEA 2) 08:38 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 13 15:50 (WEA 2) 16:22 |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | 16:37 (WEA 2) | 08:00 | 15:42 (WEA 2) 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | 13 16:50 (WEA 2) | 16:36 | 4 15:46 (WEA 2) 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | 16:33 (WEA 2) | 08:02 | 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | 20 16:53 (WEA 2) | 16:35 | 16:23 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | 16:31 (WEA 2) | 08:04 | 08:39 |
| | 21:40 | 20:44 | 19:34 | 18:26 | 24 16:55 (WEA 2) | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | 16:29 (WEA 2) | 08:05 | 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | 28 16:57 (WEA 2) | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | 16:28 (WEA 2) | 08:07 | 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | 30 16:58 (WEA 2) | 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | 15:27 (WEA 2) | 08:08 | 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | 32 15:59 (WEA 2) | 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | 15:26 (WEA 2) | 08:10 | 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | 34 16:00 (WEA 2) | 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | 15:25 (WEA 2) | 08:12 | 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | 36 16:01 (WEA 2) | 16:29 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | 15:24 (WEA 2) | 08:13 | 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | 38 16:02 (WEA 2) | 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | 15:24 (WEA 2) | 08:15 | 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | 38 16:02 (WEA 2) | 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | 15:22 (WEA 2) | 08:16 | 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | 39 16:01 (WEA 2) | 16:26 | 16:29 |
| 31 | 05:51 | 06:41 | | 07:25 | 15:22 (WEA 2) | | 08:42 |
| | 21:26 | 20:25 | | 17:08 | 40 16:02 (WEA 2) | | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 372 | | 623 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 13-SO - IP 13-SO
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 15:57 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 15:57 (WEA 2) 16:32 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 15:56 (WEA 2) 16:32 (WEA 2) | 07:17 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 15:57 (WEA 2) 16:33 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 15:56 (WEA 2) 16:34 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 15:56 (WEA 2) 16:34 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 15:56 (WEA 2) 16:34 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 15:56 (WEA 2) 16:34 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 15:56 (WEA 2) 16:33 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 15:57 (WEA 2) 16:34 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 15:58 (WEA 2) 16:34 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 15:58 (WEA 2) 16:33 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 15:59 (WEA 2) 16:32 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 15:59 (WEA 2) 16:31 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 16:00 (WEA 2) 16:30 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:01 (WEA 2) 16:30 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 16:02 (WEA 2) 16:28 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:04 (WEA 2) 16:27 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:06 (WEA 2) 16:25 (WEA 2) | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:09 (WEA 2) 16:22 (WEA 2) | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:00 (WEA 2) 18:46 | 06:35 20:40 | 06:25 21:28 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 16:09 (WEA 2) 17:58 | 07:36 18:48 | 06:33 20:41 | 06:23 21:30 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 16:06 (WEA 2) 16:19 (WEA 2) | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 16:03 (WEA 2) 16:21 (WEA 2) | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 16:02 (WEA 2) 16:23 (WEA 2) | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 16:02 (WEA 2) 16:25 (WEA 2) | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 16:00 (WEA 2) 16:26 (WEA 2) | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 15:59 (WEA 2) 16:27 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 15:59 (WEA 2) 16:29 (WEA 2) | 07:21 18:09 | 06:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 15:58 (WEA 2) 16:30 (WEA 2) | 07:20 18:09 | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 15:58 (WEA 2) 16:31 (WEA 2) | 07:19 18:09 | 07:12 20:04 | 06:07 21:42 | 05:21 21:42 | 05:15 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 229 | 643 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 13-SO - IP 13-SO
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|-------|--------|-----------|---------|------------------|----------|--------------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 15:26 (WEA 2) 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 37 16:03 (WEA 2) 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 15:26 (WEA 2) 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 37 16:03 (WEA 2) 16:25 |
| 3 | 05:18 | 05:56 | 06:46 | 07:36 | | 07:30 | 15:26 (WEA 2) 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 37 16:03 (WEA 2) 16:24 |
| 4 | 05:18 | 05:58 | 06:48 | 07:37 | | 07:32 | 15:26 (WEA 2) 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:01 | 37 16:03 (WEA 2) 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 15:26 (WEA 2) 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 37 16:03 (WEA 2) 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 15:26 (WEA 2) 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 37 16:03 (WEA 2) 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 15:26 (WEA 2) 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 37 16:03 (WEA 2) 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 15:27 (WEA 2) 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 36 16:03 (WEA 2) 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 15:27 (WEA 2) 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 36 16:03 (WEA 2) 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:48 | | 07:43 | 15:28 (WEA 2) 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 34 16:02 (WEA 2) 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 15:29 (WEA 2) 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 33 16:02 (WEA 2) 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 15:30 (WEA 2) 08:31 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 31 16:01 (WEA 2) 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 15:31 (WEA 2) 08:33 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | 30 16:01 (WEA 2) 16:21 |
| 14 | 05:28 | 06:14 | 07:04 | 07:54 | | 07:50 | 15:32 (WEA 2) 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | 28 16:00 (WEA 2) 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 15:33 (WEA 2) 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | 26 15:59 (WEA 2) 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 15:35 (WEA 2) 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | 23 15:58 (WEA 2) 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 15:36 (WEA 2) 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | 21 15:57 (WEA 2) 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 15:37 (WEA 2) 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 18 15:55 (WEA 2) 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 15:40 (WEA 2) 08:38 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 13 15:53 (WEA 2) 16:22 |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | | 08:00 | 15:44 (WEA 2) 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | 6 15:50 (WEA 2) 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | 16:45 (WEA 2) | 08:02 | 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | 2 16:47 (WEA 2) | 16:35 | 16:23 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | 16:38 (WEA 2) | 08:04 | 08:39 |
| | 21:40 | 20:44 | 19:34 | 18:26 | 15 16:53 (WEA 2) | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | 16:36 (WEA 2) | 08:05 | 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | 20 16:56 (WEA 2) | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | 16:34 (WEA 2) | 08:07 | 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | 24 16:58 (WEA 2) | 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | 15:32 (WEA 2) | 08:08 | 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | 26 15:58 (WEA 2) | 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | 15:31 (WEA 2) | 08:10 | 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | 28 15:59 (WEA 2) | 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | 15:30 (WEA 2) | 08:12 | 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | 30 16:00 (WEA 2) | 16:29 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | 15:29 (WEA 2) | 08:13 | 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | 32 16:01 (WEA 2) | 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | 15:28 (WEA 2) | 08:15 | 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | 34 16:02 (WEA 2) | 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | 15:27 (WEA 2) | 08:16 | 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | 35 16:02 (WEA 2) | 16:26 | 16:29 |
| 31 | 05:51 | 06:41 | | 07:25 | 15:26 (WEA 2) | | 08:42 |
| | 21:26 | 20:25 | | 17:08 | 36 16:02 (WEA 2) | | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 282 | | 594 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 13-SW - IP 13-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 15:55 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 15:55 (WEA 2) 16:31 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 15:54 (WEA 2) 16:31 (WEA 2) | 07:17 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 15:55 (WEA 2) 16:32 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 15:55 (WEA 2) 16:32 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 15:54 (WEA 2) 16:33 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 15:54 (WEA 2) 16:32 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 15:54 (WEA 2) 16:32 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 15:55 (WEA 2) 16:32 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 15:56 (WEA 2) 16:33 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 15:56 (WEA 2) 16:33 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 15:57 (WEA 2) 16:32 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 15:57 (WEA 2) 16:32 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 15:58 (WEA 2) 16:31 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 15:59 (WEA 2) 16:30 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:01 (WEA 2) 16:29 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 16:01 (WEA 2) 16:27 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:03 (WEA 2) 16:25 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:06 (WEA 2) 16:23 (WEA 2) | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:10 (WEA 2) 16:19 (WEA 2) | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 9 16:19 (WEA 2) | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 16:05 (WEA 2) 16:16 (WEA 2) | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 16:03 (WEA 2) 16:19 (WEA 2) | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 16:01 (WEA 2) 16:21 (WEA 2) | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 16:00 (WEA 2) 16:23 (WEA 2) | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 15:59 (WEA 2) 16:25 (WEA 2) | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 15:58 (WEA 2) 16:26 (WEA 2) | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 15:57 (WEA 2) 16:27 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 15:57 (WEA 2) 16:28 (WEA 2) | 07:21 18:09 | 06:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 15:56 (WEA 2) 16:29 (WEA 2) | 07:19 18:07 | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 15:56 (WEA 2) 16:30 (WEA 2) | 07:17 18:04 | 07:12 20:04 | 06:05 20:57 | 05:20 21:42 | 05:15 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 252 | 645 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 13-SW - IP 13-SW
Annahmen für Schattenwurfberechnung

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

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

| | July | August | September | Oktober | | November | | Dezember |
|---------------------------|-------|--------|-----------|---------|----|---------------|------------------|----------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 15:24 (WEA 2) | 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 38 16:02 (WEA 2) | 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 15:24 (WEA 2) | 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 38 16:02 (WEA 2) | 16:25 |
| 3 | 05:18 | 05:56 | 06:46 | 07:36 | | 07:30 | 15:24 (WEA 2) | 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 38 16:02 (WEA 2) | 16:24 |
| 4 | 05:18 | 05:58 | 06:48 | 07:37 | | 07:32 | 15:24 (WEA 2) | 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:01 | 38 16:02 (WEA 2) | 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 15:24 (WEA 2) | 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 38 16:02 (WEA 2) | 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 15:24 (WEA 2) | 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 38 16:02 (WEA 2) | 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 15:25 (WEA 2) | 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 37 16:02 (WEA 2) | 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 15:25 (WEA 2) | 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 37 16:02 (WEA 2) | 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 15:26 (WEA 2) | 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 36 16:02 (WEA 2) | 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:48 | | 07:43 | 15:26 (WEA 2) | 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 35 16:01 (WEA 2) | 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 15:27 (WEA 2) | 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 34 16:01 (WEA 2) | 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 15:28 (WEA 2) | 08:32 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 33 16:01 (WEA 2) | 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 15:29 (WEA 2) | 08:33 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | 31 16:00 (WEA 2) | 16:21 |
| 14 | 05:28 | 06:14 | 07:04 | 07:54 | | 07:50 | 15:30 (WEA 2) | 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | 29 15:59 (WEA 2) | 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 15:31 (WEA 2) | 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | 28 15:59 (WEA 2) | 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 15:32 (WEA 2) | 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | 26 15:58 (WEA 2) | 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 15:34 (WEA 2) | 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | 23 15:57 (WEA 2) | 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 15:35 (WEA 2) | 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 20 15:55 (WEA 2) | 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 15:37 (WEA 2) | 08:38 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 16 15:53 (WEA 2) | 16:22 |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | | 08:00 | 15:40 (WEA 2) | 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | 11 15:51 (WEA 2) | 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | | 08:02 | | 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | | 16:35 | | 16:23 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | | 08:04 | | 08:39 |
| | 21:40 | 20:44 | 19:34 | 18:26 | 13 | 16:51 (WEA 2) | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | | 16:35 (WEA 2) | 08:05 | 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | 19 | 16:54 (WEA 2) | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | | 16:33 (WEA 2) | 08:07 | 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | 23 | 16:56 (WEA 2) | 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | | 15:31 (WEA 2) | 08:08 | 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | 26 | 15:57 (WEA 2) | 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | | 15:30 (WEA 2) | 08:10 | 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | 29 | 15:59 (WEA 2) | 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | | 15:29 (WEA 2) | 08:12 | 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | 31 | 16:00 (WEA 2) | 16:29 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | | 15:28 (WEA 2) | 08:13 | 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | 33 | 16:01 (WEA 2) | 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | | 15:27 (WEA 2) | 08:15 | 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | 34 | 16:01 (WEA 2) | 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | | 15:25 (WEA 2) | 08:16 | 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | 36 | 16:01 (WEA 2) | 16:26 | 16:29 |
| 31 | 05:51 | 06:41 | | 07:25 | | 15:25 (WEA 2) | | 08:42 |
| | 21:26 | 20:25 | | 17:08 | 36 | 16:01 (WEA 2) | | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | 280 | | 624 | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 14-NW - IP 14-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | Marz | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | |
|---------------------------|--------|---------|---------------|-------|-------|-------|-------|--------|-----------|---------|----------|---------------|---------------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 16:03 (WEA 2) | 08:18 | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:12 (WEA 2) | 16:25 | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 16:04 (WEA 2) | 08:19 | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:12 (WEA 2) | 16:25 | |
| 3 | 08:41 | 08:11 | 16:38 (WEA 2) | 07:17 | 07:05 | 06:01 | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 16:05 (WEA 2) | 08:21 | |
| | 16:33 | 17:23 | 16:39 (WEA 2) | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:12 (WEA 2) | 16:24 |
| 4 | 08:41 | 08:10 | 16:39 (WEA 2) | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:58 | 06:48 | 07:37 | 16:06 (WEA 2) | 08:22 | |
| | 16:34 | 17:25 | 16:40 (WEA 2) | 18:16 | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:01 | 16:12 (WEA 2) | 16:23 |
| 5 | 08:41 | 08:08 | 16:38 (WEA 2) | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 16:07 (WEA 2) | 08:23 | |
| | 16:35 | 17:26 | 16:41 (WEA 2) | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:11 (WEA 2) | 16:23 |
| 6 | 08:41 | 08:06 | 16:37 (WEA 2) | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 16:08 (WEA 2) | 08:25 | |
| | 16:37 | 17:28 | 16:44 (WEA 2) | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:11 (WEA 2) | 16:22 |
| 7 | 08:40 | 08:05 | 16:36 (WEA 2) | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 16:08 (WEA 2) | 08:26 | |
| | 16:38 | 17:30 | 16:42 (WEA 2) | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:10 (WEA 2) | 16:22 |
| 8 | 08:40 | 08:03 | 16:35 (WEA 2) | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 16:09 (WEA 2) | 08:27 | |
| | 16:39 | 17:32 | 16:42 (WEA 2) | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 16:11 (WEA 2) | 16:22 |
| 9 | 08:39 | 08:01 | 16:34 (WEA 2) | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 16:10 (WEA 2) | 08:28 | |
| | 16:41 | 17:34 | 16:44 (WEA 2) | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:11 | 20:04 | 18:54 | 16:52 | 16:11 (WEA 2) | 16:21 |
| 10 | 08:39 | 07:59 | 16:34 (WEA 2) | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:48 | 16:11 (WEA 2) | 08:29 | |
| | 16:42 | 17:36 | 16:44 (WEA 2) | 18:27 | 20:21 | 21:12 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 16:50 | 16:11 (WEA 2) | 16:21 |
| 11 | 08:38 | 07:58 | 16:34 (WEA 2) | 06:59 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | 16:11 (WEA 2) | 08:30 | |
| | 16:43 | 17:38 | 16:44 (WEA 2) | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 16:49 | 16:11 (WEA 2) | 16:21 |
| 12 | 08:38 | 07:56 | 16:33 (WEA 2) | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 16:11 (WEA 2) | 08:31 | |
| | 16:45 | 17:40 | 16:44 (WEA 2) | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 16:47 | 16:11 (WEA 2) | 16:21 |
| 13 | 08:37 | 07:54 | 16:32 (WEA 2) | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 16:11 (WEA 2) | 08:33 | |
| | 16:46 | 17:41 | 16:44 (WEA 2) | 18:32 | 20:26 | 21:16 | 21:54 | 21:49 | 21:03 | 19:55 | 18:45 | 16:46 | 16:11 (WEA 2) | 16:21 |
| 14 | 08:36 | 07:52 | 16:31 (WEA 2) | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:14 | 07:04 | 07:54 | 16:11 (WEA 2) | 08:33 | |
| | 16:48 | 17:43 | 16:43 (WEA 2) | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:44 | 16:44 | 16:11 (WEA 2) | 16:21 |
| 15 | 08:35 | 07:50 | 16:30 (WEA 2) | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:52 | 16:11 (WEA 2) | 08:34 | |
| | 16:50 | 17:45 | 16:43 (WEA 2) | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 16:43 | 16:11 (WEA 2) | 16:21 |
| 16 | 08:34 | 07:48 | 16:30 (WEA 2) | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | 16:11 (WEA 2) | 08:35 | |
| | 16:51 | 17:47 | 16:43 (WEA 2) | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 16:41 | 16:11 (WEA 2) | 16:21 |
| 17 | 08:34 | 07:46 | 16:28 (WEA 2) | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | 16:41 | 16:11 (WEA 2) | 08:36 |
| | 16:53 | 17:49 | 16:41 (WEA 2) | 18:39 | 20:33 | 21:23 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 16:40 | 16:11 (WEA 2) | 16:21 |
| 18 | 08:33 | 07:44 | 16:27 (WEA 2) | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 16:54 (WEA 2) | 07:57 | 08:37 |
| | 16:54 | 17:51 | 16:40 (WEA 2) | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 17:02 (WEA 2) | 16:39 | 16:21 |
| 19 | 08:32 | 07:42 | 16:26 (WEA 2) | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 16:53 (WEA 2) | 07:58 | 08:38 |
| | 16:56 | 17:53 | 16:39 (WEA 2) | 18:43 | 20:36 | 21:26 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | 17:04 (WEA 2) | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 16:25 (WEA 2) | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 16:54 (WEA 2) | 08:00 | 08:38 |
| | 16:58 | 17:54 | 16:38 (WEA 2) | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:49 | 19:38 | 18:30 | 17:06 (WEA 2) | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 16:24 (WEA 2) | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 16:55 (WEA 2) | 08:02 | 08:39 |
| | 16:59 | 17:56 | 16:37 (WEA 2) | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 17:08 (WEA 2) | 16:35 | 16:23 |
| 22 | 08:28 | 07:36 | 16:24 (WEA 2) | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 16:56 (WEA 2) | 08:04 | 08:39 |
| | 17:01 | 17:58 | 16:35 (WEA 2) | 18:48 | 20:41 | 21:30 | 21:57 | 21:40 | 20:44 | 19:34 | 18:26 | 17:09 (WEA 2) | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 16:23 (WEA 2) | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 16:57 (WEA 2) | 08:05 | 16:20 |
| | 17:03 | 18:00 | 16:33 (WEA 2) | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 17:10 (WEA 2) | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 16:22 (WEA 2) | 06:28 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 16:58 (WEA 2) | 08:07 | 08:40 |
| | 17:05 | 18:02 | 16:28 (WEA 2) | 18:52 | 20:45 | 21:33 | 21:58 | 21:37 | 20:40 | 19:29 | 18:22 | 17:11 (WEA 2) | 16:31 | 16:24 |
| 25 | 08:25 | 07:30 | 16:26 (WEA 2) | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 08:14 | 15:58 (WEA 2) | 08:08 | 08:41 |
| | 17:06 | 18:04 | 16:33 (WEA 2) | 18:53 | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 18:20 | 16:12 (WEA 2) | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 16:25 (WEA 2) | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 08:16 | 15:59 (WEA 2) | 08:10 | 08:41 |
| | 17:08 | 18:06 | 16:30 (WEA 2) | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 18:18 | 16:12 (WEA 2) | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 16:24 (WEA 2) | 06:22 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 08:17 | 16:00 (WEA 2) | 08:12 | 08:41 |
| | 17:10 | 18:07 | 16:35 (WEA 2) | 18:57 | 20:50 | 21:37 | 21:58 | 21:33 | 20:33 | 19:22 | 18:16 | 16:13 (WEA 2) | 16:29 | 16:26 |
| 28 | 08:21 | 07:23 | 16:23 (WEA 2) | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 08:19 | 16:01 (WEA 2) | 08:13 | 08:41 |
| | 17:12 | 18:09 | 16:38 (WEA 2) | 18:58 | 20:52 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 18:14 | 16:13 (WEA 2) | 16:28 | 16:27 |
| 29 | 08:19 | 07:21 | 16:22 (WEA 2) | 06:17 | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 08:21 | 16:01 (WEA 2) | 08:15 | 08:42 |
| | 17:14 | 18:11 | 16:33 (WEA 2) | 18:59 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 18:12 | 16:12 (WEA 2) | 16:27 | 16:28 |
| 30 | 08:18 | 07:20 | 16:21 (WEA 2) | 06:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 08:23 | 16:02 (WEA 2) | 08:16 | 08:42 |
| | 17:15 | 18:12 | 16:34 (WEA 2) | 18:59 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 18:10 | 16:12 (WEA 2) | 16:26 | 16:29 |
| 31 | 08:16 | 07:18 | 16:20 (WEA 2) | 06:12 | 06:04 | 05:20 | 05:15 | 05:51 | 06:41 | 07:32 | 08:24 | 16:02 (WEA 2) | 08:16 | 08:42 |
| | 17:17 | 18:14 | 16:35 (WEA 2) | 18:59 | 20:54 | 21:42 | 21:57 | 21:26 | 20:25 | 19:13 | 18:08 | 16:12 (WEA 2) | 16:26 | 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 266 | 39 | 243 | |
| astr.max.mögl.Beschattung | | 203 | | | | | | | | 166 | | | | |

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: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 14-SO - IP 14-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:14 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:13 (WEA 2) 16:39 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:12 (WEA 2) 16:38 (WEA 2) | 07:17 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:12 (WEA 2) 16:39 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:11 (WEA 2) 16:38 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:10 (WEA 2) 16:37 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:09 (WEA 2) 16:36 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:09 (WEA 2) 16:35 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:08 (WEA 2) 16:34 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:09 (WEA 2) 16:34 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:09 (WEA 2) 16:34 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:09 (WEA 2) 16:33 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:09 (WEA 2) 16:32 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:09 (WEA 2) 16:31 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 16:09 (WEA 2) 16:30 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:10 (WEA 2) 16:30 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 16:09 (WEA 2) 16:28 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:10 (WEA 2) 16:27 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:11 (WEA 2) 16:26 (WEA 2) | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:12 (WEA 2) 16:25 (WEA 2) | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:13 (WEA 2) 16:24 (WEA 2) | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 16:15 (WEA 2) 16:24 (WEA 2) | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 16:17 (WEA 2) 16:23 (WEA 2) | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 16:20 (WEA 2) 16:22 (WEA 2) | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:30 18:04 | | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 16:21 (WEA 2) 16:31 (WEA 2) | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:17 (WEA 2) 16:33 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:16 (WEA 2) 16:36 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 46 | 488 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 14-SO - IP 14-SO
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | | Dezember | |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|-----|--------------------------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 25 | 15:38 (WEA 2) 16:03 (WEA 2) | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 26 | 15:38 (WEA 2) 16:04 (WEA 2) | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 27 | 15:38 (WEA 2) 16:05 (WEA 2) | 08:21 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | 27 | 15:39 (WEA 2) 16:06 (WEA 2) | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 27 | 15:40 (WEA 2) 16:07 (WEA 2) | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 27 | 15:41 (WEA 2) 16:08 (WEA 2) | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | 27 | 15:41 (WEA 2) 16:08 (WEA 2) | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | 26 | 15:43 (WEA 2) 16:09 (WEA 2) | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | 26 | 15:44 (WEA 2) 16:10 (WEA 2) | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | | 07:43 16:50 | 24 | 15:45 (WEA 2) 16:09 (WEA 2) | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | | 07:44 16:49 | 20 | 15:47 (WEA 2) 16:07 (WEA 2) | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | | 07:46 16:47 | 16 | 15:49 (WEA 2) 16:05 (WEA 2) | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | | 07:48 16:46 | 9 | 15:53 (WEA 2) 16:02 (WEA 2) | 08:32 16:21 |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | | 07:50 16:44 | | | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | | 07:52 16:43 | | | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | | 07:53 16:41 | | | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | | 07:55 16:40 | | | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 4 | 16:50 (WEA 2) 16:54 (WEA 2) | | | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 6 | 16:47 (WEA 2) 16:53 (WEA 2) | | | 08:38 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 9 | 16:45 (WEA 2) 16:54 (WEA 2) | | | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 12 | 16:43 (WEA 2) 16:55 (WEA 2) | | | 08:39 16:23 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 14 | 16:42 (WEA 2) 16:56 (WEA 2) | | | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 16 | 16:41 (WEA 2) 16:57 (WEA 2) | | | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 18 | 16:40 (WEA 2) 16:58 (WEA 2) | | | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 18 | 15:40 (WEA 2) 15:58 (WEA 2) | | | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 20 | 15:39 (WEA 2) 15:59 (WEA 2) | | | 08:41 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 21 | 15:39 (WEA 2) 16:00 (WEA 2) | | | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 22 | 15:39 (WEA 2) 16:01 (WEA 2) | | | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 24 | 15:37 (WEA 2) 16:01 (WEA 2) | | | 08:42 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 25 | 15:37 (WEA 2) 16:02 (WEA 2) | | | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | 08:25 17:08 | 24 | 15:38 (WEA 2) 16:02 (WEA 2) | | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 307 | | 243 |
| astr.max.mögl.Beschattung | | | | 233 | | | | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 14-SW - IP 14-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:12 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:11 (WEA 2) 16:38 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:10 (WEA 2) 16:39 (WEA 2) | 07:17 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:10 (WEA 2) 16:41 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:09 (WEA 2) 16:42 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:08 (WEA 2) 16:42 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:07 (WEA 2) 16:43 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:07 (WEA 2) 16:43 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:07 (WEA 2) 16:44 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:07 (WEA 2) 16:45 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:07 (WEA 2) 16:45 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:07 (WEA 2) 16:45 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:07 (WEA 2) 16:45 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:08 (WEA 2) 16:45 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 16:08 (WEA 2) 16:44 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:08 (WEA 2) 16:44 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 16:08 (WEA 2) 16:43 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:09 (WEA 2) 16:42 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:10 (WEA 2) 16:41 (WEA 2) | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:11 (WEA 2) 16:40 (WEA 2) | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:12 (WEA 2) 16:39 (WEA 2) | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 16:14 (WEA 2) 16:38 (WEA 2) | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 16:16 (WEA 2) 16:36 (WEA 2) | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 16:19 (WEA 2) 16:33 (WEA 2) | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:30 18:04 | | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | 16:20 (WEA 2) 16:26 (WEA 2) | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 16:17 (WEA 2) 16:31 (WEA 2) | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:15 (WEA 2) 16:33 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:14 (WEA 2) 16:36 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 60 | 762 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 14-SW - IP 14-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | | Dezember | |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|-----|--------------------------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 37 | 15:36 (WEA 2) 16:13 (WEA 2) | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 37 | 15:36 (WEA 2) 16:13 (WEA 2) | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 36 | 15:37 (WEA 2) 16:13 (WEA 2) | 08:21 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | 35 | 15:37 (WEA 2) 16:12 (WEA 2) | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 34 | 15:38 (WEA 2) 16:12 (WEA 2) | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 32 | 15:39 (WEA 2) 16:11 (WEA 2) | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | 32 | 15:39 (WEA 2) 16:11 (WEA 2) | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | 30 | 15:40 (WEA 2) 16:10 (WEA 2) | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | 27 | 15:42 (WEA 2) 16:09 (WEA 2) | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | | 07:43 16:50 | 25 | 15:43 (WEA 2) 16:08 (WEA 2) | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | | 07:44 16:49 | 22 | 15:45 (WEA 2) 16:07 (WEA 2) | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | | 07:46 16:47 | 18 | 15:47 (WEA 2) 16:05 (WEA 2) | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | | 07:48 16:46 | 14 | 15:49 (WEA 2) 16:03 (WEA 2) | 08:33 16:21 |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | | 07:50 16:44 | 5 | 15:54 (WEA 2) 15:59 (WEA 2) | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | | 07:52 16:43 | | | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | | 07:53 16:41 | | | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 7 | 16:54 (WEA 2) 17:01 (WEA 2) | | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 16 | 16:49 (WEA 2) 17:05 (WEA 2) | | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:52 | 07:12 19:41 | 08:03 18:32 | 21 | 16:46 (WEA 2) 17:07 (WEA 2) | | 07:58 16:37 | 08:38 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 25 | 16:44 (WEA 2) 17:09 (WEA 2) | | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 28 | 16:42 (WEA 2) 17:10 (WEA 2) | | 08:02 16:35 | 08:39 16:23 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 30 | 16:41 (WEA 2) 17:11 (WEA 2) | | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 32 | 16:40 (WEA 2) 17:12 (WEA 2) | | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 34 | 16:39 (WEA 2) 17:13 (WEA 2) | | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 07:14 17:20 | 35 | 15:38 (WEA 2) 16:13 (WEA 2) | | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 07:16 17:18 | 36 | 15:38 (WEA 2) 16:14 (WEA 2) | | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 07:17 17:16 | 37 | 15:37 (WEA 2) 16:14 (WEA 2) | | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 07:19 17:14 | 37 | 15:37 (WEA 2) 16:14 (WEA 2) | | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 07:21 17:12 | 37 | 15:36 (WEA 2) 16:13 (WEA 2) | | 08:15 16:27 | 08:42 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 38 | 15:36 (WEA 2) 16:14 (WEA 2) | | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | 07:25 17:08 | 37 | 15:36 (WEA 2) 16:13 (WEA 2) | | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | 450 | | | 384 | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 15-SO - IP 15-SO
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|----------------|----------------|--------------------------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 16:23 (WEA 2) 16:59 (WEA 2) | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 16:24 (WEA 2) 16:58 (WEA 2) | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:17 18:15 | 16:25 (WEA 2) 16:57 (WEA 2) | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 16:27 (WEA 2) 16:56 (WEA 2) | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 16:28 (WEA 2) 16:53 (WEA 2) | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 16:30 (WEA 2) 16:51 (WEA 2) | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 16:33 (WEA 2) 16:48 (WEA 2) | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 16:39 (WEA 2) 16:45 (WEA 2) | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 16:34 (WEA 2) 16:50 (WEA 2) | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 16:33 (WEA 2) 16:53 (WEA 2) | 07:01 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 06:59 18:29 | 16:30 (WEA 2) 16:55 (WEA 2) | 06:49 20:22 | 05:48 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 06:56 18:31 | 16:29 (WEA 2) 16:57 (WEA 2) | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 16:28 (WEA 2) 16:58 (WEA 2) | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 16:26 (WEA 2) 17:00 (WEA 2) | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 16:25 (WEA 2) 17:01 (WEA 2) | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 16:25 (WEA 2) 17:01 (WEA 2) | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 06:45 18:39 | 16:23 (WEA 2) 17:01 (WEA 2) | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 06:42 18:41 | 16:23 (WEA 2) 17:02 (WEA 2) | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 06:40 18:43 | 16:22 (WEA 2) 17:02 (WEA 2) | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 16:22 (WEA 2) 17:03 (WEA 2) | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 16:22 (WEA 2) 17:03 (WEA 2) | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 16:22 (WEA 2) 17:03 (WEA 2) | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 16:22 (WEA 2) 17:03 (WEA 2) | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 16:22 (WEA 2) 17:03 (WEA 2) | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:30 18:04 | 06:26 18:53 | 16:21 (WEA 2) 17:02 (WEA 2) | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 16:22 (WEA 2) 17:02 (WEA 2) | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:22 18:57 | 16:22 (WEA 2) 17:01 (WEA 2) | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | 06:19 18:58 | 16:23 (WEA 2) 17:01 (WEA 2) | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | | 07:17 20:00 | | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | | 711 | 192 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 15-SO - IP 15-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 16:02 (WEA 2) 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 16:05 (WEA 2) 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 16:19 (WEA 2) 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | 16:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 16:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 10 | 17:12 (WEA 2) 17:22 (WEA 2) | 07:35 16:57 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 18 | 17:08 (WEA 2) 17:26 (WEA 2) | 07:37 16:55 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 23 | 17:05 (WEA 2) 17:28 (WEA 2) | 07:39 16:54 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 27 | 17:02 (WEA 2) 17:29 (WEA 2) | 07:41 16:52 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 31 | 17:00 (WEA 2) 17:31 (WEA 2) | 07:43 16:50 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 33 | 16:59 (WEA 2) 17:32 (WEA 2) | 07:44 16:49 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 35 | 16:58 (WEA 2) 17:33 (WEA 2) | 07:46 16:47 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 37 | 16:56 (WEA 2) 17:33 (WEA 2) | 07:48 16:46 |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | 38 | 16:55 (WEA 2) 17:33 (WEA 2) | 07:50 16:44 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 40 | 16:54 (WEA 2) 17:34 (WEA 2) | 07:52 16:43 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 40 | 16:54 (WEA 2) 17:34 (WEA 2) | 07:53 16:41 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 41 | 16:53 (WEA 2) 17:34 (WEA 2) | 07:55 16:40 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 41 | 16:53 (WEA 2) 17:34 (WEA 2) | 07:57 16:39 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 41 | 16:52 (WEA 2) 17:33 (WEA 2) | 07:58 16:37 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 41 | 16:52 (WEA 2) 17:33 (WEA 2) | 08:00 16:36 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 41 | 16:52 (WEA 2) 17:33 (WEA 2) | 08:02 16:35 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 41 | 16:52 (WEA 2) 17:33 (WEA 2) | 08:04 16:34 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 39 | 16:53 (WEA 2) 17:32 (WEA 2) | 08:05 16:33 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 39 | 16:53 (WEA 2) 17:32 (WEA 2) | 08:07 16:31 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 07:14 17:20 | 37 | 15:54 (WEA 2) 16:31 (WEA 2) | 08:08 16:30 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 07:16 17:18 | 37 | 15:54 (WEA 2) 16:31 (WEA 2) | 08:10 16:29 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 07:17 17:16 | 35 | 15:55 (WEA 2) 16:30 (WEA 2) | 08:12 16:29 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 07:19 17:14 | 33 | 15:56 (WEA 2) 16:29 (WEA 2) | 08:13 16:28 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 07:21 17:12 | 31 | 15:56 (WEA 2) 16:27 (WEA 2) | 08:15 16:27 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 27 | 15:58 (WEA 2) 16:25 (WEA 2) | 08:16 16:26 |
| 31 | 05:51 21:26 | 06:41 20:25 | 07:25 17:08 | 07:25 17:05 | 25 | 15:59 (WEA 2) 16:24 (WEA 2) | 08:16 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 881 | | 34 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 15-SW - IP 15-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni |
|---------------------------|----------------|----------------|----------------|------------------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 16:22 (WEA 2) 18:11 | 07:10 20:05 | 06:05 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 16:23 (WEA 2) 18:13 | 07:08 20:07 | 06:03 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:17 18:15 | 16:24 (WEA 2) 18:15 | 07:05 20:09 | 06:01 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 16:26 (WEA 2) 18:16 | 07:03 20:10 | 05:59 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 16:27 (WEA 2) 18:18 | 07:01 20:12 | 05:57 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 16:30 (WEA 2) 18:20 | 06:58 20:14 | 05:55 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 16:34 (WEA 2) 18:22 | 06:56 20:16 | 05:54 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 16:34 (WEA 2) 18:24 | 06:54 20:17 | 05:52 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 16:30 (WEA 2) 18:25 | 06:52 20:19 | 05:50 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 16:29 (WEA 2) 18:27 | 06:49 20:21 | 05:48 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 06:59 18:29 | 16:53 (WEA 2) 18:29 | 06:47 20:22 | 05:47 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 06:56 18:31 | 16:26 (WEA 2) 18:31 | 06:45 20:24 | 05:45 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 16:25 (WEA 2) 18:32 | 06:43 20:26 | 05:43 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 16:24 (WEA 2) 18:34 | 06:40 20:28 | 05:42 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 16:58 (WEA 2) 18:36 | 06:38 20:29 | 05:40 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 17:00 (WEA 2) 18:38 | 06:36 20:31 | 05:39 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 06:45 18:39 | 16:21 (WEA 2) 18:39 | 06:34 20:33 | 05:37 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 06:42 18:41 | 16:23 (WEA 2) 18:41 | 06:32 20:34 | 05:36 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 06:40 18:43 | 17:00 (WEA 2) 18:43 | 06:29 20:36 | 05:34 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 16:20 (WEA 2) 18:45 | 06:27 20:38 | 05:33 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 17:01 (WEA 2) 18:46 | 06:25 20:40 | 05:31 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 16:20 (WEA 2) 18:48 | 06:23 20:41 | 05:30 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 17:02 (WEA 2) 18:50 | 06:21 20:43 | 05:29 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 16:20 (WEA 2) 18:52 | 06:19 20:45 | 05:28 21:58 |
| 25 | 08:25 17:06 | 07:30 18:04 | 06:26 18:53 | 17:01 (WEA 2) 18:53 | 06:17 20:46 | 05:26 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 17:00 (WEA 2) 18:55 | 06:15 20:48 | 05:25 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:22 18:57 | 16:21 (WEA 2) 18:57 | 06:13 20:50 | 05:24 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | 06:19 18:58 | 16:22 (WEA 2) 18:58 | 06:11 20:52 | 05:23 21:57 |
| 29 | 08:19 17:14 | | 07:17 20:00 | 16:59 (WEA 2) 18:58 | 06:09 20:53 | 05:22 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | | 06:07 20:55 | 05:21 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | | 05:20 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | | 739 | 181 | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 15-SW - IP 15-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|-----|--------------------------------|--------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 15:58 (WEA 2) 16:22 (WEA 2) |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 16:01 (WEA 2) 16:19 (WEA 2) |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 16:04 (WEA 2) 16:16 (WEA 2) |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 15 | 17:08 (WEA 2) 17:23 (WEA 2) | 07:37 16:55 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 22 | 17:04 (WEA 2) 17:26 (WEA 2) | 07:39 16:54 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 26 | 17:01 (WEA 2) 17:27 (WEA 2) | 07:41 16:52 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 30 | 16:59 (WEA 2) 17:29 (WEA 2) | 07:43 16:50 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 32 | 16:58 (WEA 2) 17:30 (WEA 2) | 07:44 16:49 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 34 | 16:57 (WEA 2) 17:31 (WEA 2) | 07:46 16:47 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 37 | 16:54 (WEA 2) 17:31 (WEA 2) | 07:48 16:46 |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | 37 | 16:54 (WEA 2) 17:31 (WEA 2) | 07:50 16:44 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 39 | 16:53 (WEA 2) 17:32 (WEA 2) | 07:52 16:43 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 40 | 16:52 (WEA 2) 17:32 (WEA 2) | 07:53 16:41 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 41 | 16:52 (WEA 2) 17:33 (WEA 2) | 07:55 16:40 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 41 | 16:52 (WEA 2) 17:33 (WEA 2) | 07:57 16:39 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 42 | 16:50 (WEA 2) 17:32 (WEA 2) | 07:58 16:37 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 42 | 16:50 (WEA 2) 17:32 (WEA 2) | 08:00 16:36 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 42 | 16:50 (WEA 2) 17:32 (WEA 2) | 08:02 16:35 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 42 | 16:50 (WEA 2) 17:32 (WEA 2) | 08:04 16:34 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 40 | 16:51 (WEA 2) 17:31 (WEA 2) | 08:05 16:33 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 40 | 16:51 (WEA 2) 17:31 (WEA 2) | 08:07 16:31 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 07:14 17:20 | 38 | 15:52 (WEA 2) 16:30 (WEA 2) | 08:08 16:30 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 07:16 17:18 | 38 | 15:52 (WEA 2) 16:30 (WEA 2) | 08:10 16:29 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 07:17 17:16 | 36 | 15:53 (WEA 2) 16:29 (WEA 2) | 08:12 16:29 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 07:19 17:14 | 34 | 15:54 (WEA 2) 16:28 (WEA 2) | 08:13 16:28 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 07:21 17:12 | 32 | 15:54 (WEA 2) 16:26 (WEA 2) | 08:15 16:27 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 30 | 15:55 (WEA 2) 16:25 (WEA 2) | 08:16 16:26 |
| 31 | 05:51 21:26 | 06:41 20:25 | 07:31 17:08 | 07:25 17:05 | 27 | 15:56 (WEA 2) 16:23 (WEA 2) | 08:16 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | | 877 | 54 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 16-NW - IP 16-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni |
|---------------------------|----------------|----------------|----------------|------------------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 16:26 (WEA 2) 07:10 | 06:05 20:05 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 16:28 (WEA 2) 07:08 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 16:30 (WEA 2) 07:05 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 16:34 (WEA 2) 07:03 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 16:45 (WEA 2) 07:01 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 16:36 (WEA 2) 06:58 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 16:44 (WEA 2) 06:56 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 16:32 (WEA 2) 06:54 | 05:54 21:08 | 05:15 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 16:48 (WEA 2) 06:52 | 05:52 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 16:30 (WEA 2) 06:49 | 05:50 21:12 | 05:14 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 06:59 18:29 | 16:28 (WEA 2) 06:47 | 05:48 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 06:56 18:31 | 16:55 (WEA 2) 06:45 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 16:26 (WEA 2) 06:43 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 16:58 (WEA 2) 06:40 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 16:24 (WEA 2) 06:38 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 16:59 (WEA 2) 06:36 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 06:45 18:39 | 16:23 (WEA 2) 06:34 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 06:42 18:41 | 17:00 (WEA 2) 06:32 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 06:40 18:43 | 16:59 (WEA 2) 06:29 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 16:21 (WEA 2) 06:27 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 17:00 (WEA 2) 06:25 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 16:22 (WEA 2) 06:23 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 17:00 (WEA 2) 06:21 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 16:22 (WEA 2) 06:19 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:30 18:04 | 06:26 18:53 | 16:59 (WEA 2) 06:17 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 16:22 (WEA 2) 06:15 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:22 18:57 | 16:57 (WEA 2) 06:13 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | 06:19 18:58 | 16:24 (WEA 2) 06:11 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | | 07:17 20:00 | 16:25 (WEA 2) 07:15 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | 16:55 (WEA 2) 07:12 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | | 739 | 80 | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 16-NW - IP 16-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|-----|--------------------------------|--------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 15:56 (WEA 2) 16:23 (WEA 2) |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 15:58 (WEA 2) 16:22 (WEA 2) |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 16:00 (WEA 2) 16:20 (WEA 2) |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | 16:02 (WEA 2) 16:17 (WEA 2) |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 16:07 (WEA 2) 16:13 (WEA 2) |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 15 | 17:06 (WEA 2) 17:21 (WEA 2) | 07:43 16:50 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 21 | 17:03 (WEA 2) 17:24 (WEA 2) | 07:44 16:49 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 25 | 17:01 (WEA 2) 17:26 (WEA 2) | 07:46 16:47 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 28 | 16:58 (WEA 2) 17:26 (WEA 2) | 07:48 16:46 |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | 31 | 16:57 (WEA 2) 17:28 (WEA 2) | 07:50 16:44 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 33 | 16:56 (WEA 2) 17:29 (WEA 2) | 07:52 16:43 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 34 | 16:55 (WEA 2) 17:29 (WEA 2) | 07:53 16:41 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 36 | 16:54 (WEA 2) 17:30 (WEA 2) | 07:55 16:40 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 37 | 16:53 (WEA 2) 17:30 (WEA 2) | 07:57 16:39 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 38 | 16:52 (WEA 2) 17:30 (WEA 2) | 07:58 16:37 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 38 | 16:52 (WEA 2) 17:30 (WEA 2) | 08:00 16:36 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 39 | 16:51 (WEA 2) 17:30 (WEA 2) | 08:02 16:35 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 39 | 16:51 (WEA 2) 17:30 (WEA 2) | 08:04 16:34 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 39 | 16:51 (WEA 2) 17:30 (WEA 2) | 08:05 16:33 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 39 | 16:51 (WEA 2) 17:30 (WEA 2) | 08:07 16:31 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 07:14 17:20 | 38 | 15:52 (WEA 2) 16:30 (WEA 2) | 08:08 16:30 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 07:16 17:18 | 37 | 15:52 (WEA 2) 16:29 (WEA 2) | 08:10 16:29 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 07:17 17:16 | 36 | 15:53 (WEA 2) 16:29 (WEA 2) | 08:12 16:29 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 07:19 17:14 | 35 | 15:53 (WEA 2) 16:28 (WEA 2) | 08:13 16:28 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 07:21 17:12 | 33 | 15:53 (WEA 2) 16:26 (WEA 2) | 08:15 16:27 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 31 | 15:54 (WEA 2) 16:25 (WEA 2) | 08:16 16:26 |
| 31 | 05:51 21:26 | 06:41 20:25 | 07:25 17:08 | 07:25 17:05 | 29 | 15:55 (WEA 2) 16:24 (WEA 2) | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | | 731 | 92 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 16-SW - IP 16-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni |
|---------------------------|----------------|----------------|----------------|--------------------------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 16:27 (WEA 2) 18:11 | 07:10 20:05 | 06:05 20:57 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 16:28 (WEA 2) 16:55 (WEA 2) | 07:08 20:07 | 06:03 20:58 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 16:30 (WEA 2) 16:53 (WEA 2) | 07:05 20:09 | 06:01 21:00 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 16:33 (WEA 2) 16:51 (WEA 2) | 07:03 20:10 | 05:59 21:02 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 16:36 (WEA 2) 16:47 (WEA 2) | 07:01 20:12 | 05:57 21:03 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 07:10 20:14 | 06:58 21:05 | 05:55 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 16:39 (WEA 2) 16:46 (WEA 2) | 06:56 20:16 | 05:54 21:07 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 16:35 (WEA 2) 16:50 (WEA 2) | 06:54 20:17 | 05:52 21:08 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 16:32 (WEA 2) 16:53 (WEA 2) | 06:52 20:19 | 05:50 21:10 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 16:31 (WEA 2) 16:55 (WEA 2) | 07:01 20:21 | 05:48 21:12 |
| 11 | 08:38 16:43 | 07:58 17:38 | 06:59 18:29 | 16:30 (WEA 2) 16:57 (WEA 2) | 06:49 20:22 | 05:48 21:13 |
| 12 | 08:38 16:45 | 07:56 17:40 | 06:56 18:31 | 16:28 (WEA 2) 16:58 (WEA 2) | 06:45 20:24 | 05:45 21:15 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 16:27 (WEA 2) 16:59 (WEA 2) | 06:43 20:26 | 05:43 21:16 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 16:26 (WEA 2) 17:00 (WEA 2) | 06:40 20:28 | 05:42 21:18 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 16:26 (WEA 2) 17:01 (WEA 2) | 06:38 20:29 | 05:40 21:19 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 16:25 (WEA 2) 17:02 (WEA 2) | 06:36 20:31 | 05:39 21:21 |
| 17 | 08:34 16:53 | 07:46 17:49 | 06:45 18:39 | 16:24 (WEA 2) 17:01 (WEA 2) | 06:34 20:33 | 05:37 21:22 |
| 18 | 08:33 16:54 | 07:44 17:51 | 06:42 18:41 | 16:23 (WEA 2) 17:02 (WEA 2) | 06:32 20:34 | 05:36 21:24 |
| 19 | 08:32 16:56 | 07:42 17:53 | 06:40 18:43 | 16:23 (WEA 2) 17:02 (WEA 2) | 06:29 20:36 | 05:34 21:25 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 16:23 (WEA 2) 17:02 (WEA 2) | 06:27 20:38 | 05:33 21:27 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 16:23 (WEA 2) 17:02 (WEA 2) | 06:25 20:40 | 05:31 21:28 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 16:23 (WEA 2) 17:02 (WEA 2) | 06:23 20:41 | 05:30 21:30 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 16:24 (WEA 2) 17:02 (WEA 2) | 06:21 20:43 | 05:29 21:31 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 16:24 (WEA 2) 17:02 (WEA 2) | 06:19 20:45 | 05:28 21:33 |
| 25 | 08:25 17:06 | 07:30 18:04 | 06:26 18:53 | 16:24 (WEA 2) 17:00 (WEA 2) | 06:17 20:46 | 05:26 21:34 |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 16:24 (WEA 2) 17:00 (WEA 2) | 06:15 20:48 | 05:25 21:35 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:22 18:57 | 16:25 (WEA 2) 16:59 (WEA 2) | 06:13 20:50 | 05:24 21:37 |
| 28 | 08:21 17:12 | 07:23 18:09 | 06:19 18:58 | 16:26 (WEA 2) 16:58 (WEA 2) | 06:11 20:52 | 05:23 21:38 |
| 29 | 08:19 17:14 | | 07:17 20:00 | | 06:09 20:53 | 05:22 21:39 |
| 30 | 08:18 17:15 | | 07:15 20:02 | | 06:07 20:55 | 05:21 21:40 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | | 05:20 21:42 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | | 708 | 108 | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 16-SW - IP 16-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember | |
|---------------------------|----------------|----------------|----------------|----------------|-----|--------------------------------|--------------------------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 16:00 (WEA 2) 16:24 (WEA 2) | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 16:02 (WEA 2) 16:22 (WEA 2) | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 16:05 (WEA 2) 16:19 (WEA 2) | 08:21 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | 16:10 (WEA 2) 16:14 (WEA 2) | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 15 | 17:09 (WEA 2) 17:24 (WEA 2) | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 20 | 17:06 (WEA 2) 17:26 (WEA 2) | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 25 | 17:03 (WEA 2) 17:28 (WEA 2) | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 28 | 17:02 (WEA 2) 17:30 (WEA 2) | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 31 | 16:59 (WEA 2) 17:30 (WEA 2) | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:49 | 06:14 21:01 | 07:04 19:52 | 07:54 18:43 | 33 | 16:58 (WEA 2) 17:31 (WEA 2) | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 35 | 16:57 (WEA 2) 17:32 (WEA 2) | 07:52 16:43 | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 36 | 16:56 (WEA 2) 17:32 (WEA 2) | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 37 | 16:56 (WEA 2) 17:33 (WEA 2) | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 38 | 16:55 (WEA 2) 17:33 (WEA 2) | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 38 | 16:54 (WEA 2) 17:32 (WEA 2) | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 39 | 16:54 (WEA 2) 17:33 (WEA 2) | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 39 | 16:54 (WEA 2) 17:33 (WEA 2) | 08:02 16:35 | 08:39 16:23 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 38 | 16:54 (WEA 2) 17:32 (WEA 2) | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 38 | 16:54 (WEA 2) 17:32 (WEA 2) | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 38 | 16:54 (WEA 2) 17:32 (WEA 2) | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 38 | 15:54 (WEA 2) 16:32 (WEA 2) | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 36 | 15:55 (WEA 2) 16:31 (WEA 2) | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 35 | 15:55 (WEA 2) 16:30 (WEA 2) | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 34 | 15:56 (WEA 2) 16:30 (WEA 2) | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 32 | 15:56 (WEA 2) 16:28 (WEA 2) | 08:15 16:27 | 08:42 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 30 | 15:57 (WEA 2) 16:27 (WEA 2) | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | 08:25 17:08 | 27 | 15:58 (WEA 2) 16:25 (WEA 2) | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | | 760 | 62 | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 17-SW - IP 17-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | Marz | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | |
|---------------------------|--------|---------|------------------|------------------|-------|-------|-------|--------|-----------|---------|----------|------------------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 16:42 (WEA 2) | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 17:34 (WEA 2) | 07:26 | 08:18 |
| | 16:31 | 17:19 | 18:11 | 37 17:19 (WEA 2) | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 8 17:42 (WEA 2) | 17:06 | 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | 16:42 (WEA 2) | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 17:29 (WEA 2) | 07:28 | 08:19 |
| | 16:32 | 17:21 | 18:13 | 37 17:19 (WEA 2) | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17 17:46 (WEA 2) | 17:04 | 16:25 |
| 3 | 08:41 | 08:11 | 07:16 | 16:42 (WEA 2) | 07:05 | 06:01 | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 17:27 (WEA 2) | 07:30 | 08:21 |
| | 16:33 | 17:23 | 18:15 | 37 17:19 (WEA 2) | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 21 17:48 (WEA 2) | 17:02 | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 16:43 (WEA 2) | 07:03 | 05:59 | 05:17 | 05:18 | 05:58 | 06:48 | 07:37 | 17:25 (WEA 2) | 07:32 | 08:22 |
| | 16:34 | 17:25 | 18:16 | 36 17:19 (WEA 2) | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 25 17:50 (WEA 2) | 17:01 | 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | 16:42 (WEA 2) | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 17:22 (WEA 2) | 07:34 | 08:23 |
| | 16:35 | 17:26 | 18:18 | 36 17:18 (WEA 2) | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 29 17:51 (WEA 2) | 16:59 | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 16:43 (WEA 2) | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 17:21 (WEA 2) | 07:35 | 08:25 |
| | 16:37 | 17:28 | 18:20 | 34 17:17 (WEA 2) | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 31 17:52 (WEA 2) | 16:57 | 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | 16:44 (WEA 2) | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 17:20 (WEA 2) | 07:37 | 08:26 |
| | 16:38 | 17:30 | 18:22 | 32 17:16 (WEA 2) | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 33 17:53 (WEA 2) | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 16:44 (WEA 2) | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 17:19 (WEA 2) | 07:39 | 08:27 |
| | 16:39 | 17:32 | 18:24 | 30 17:14 (WEA 2) | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 34 17:53 (WEA 2) | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 16:46 (WEA 2) | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 17:17 (WEA 2) | 07:41 | 08:28 |
| | 16:41 | 17:34 | 18:25 | 27 17:13 (WEA 2) | 20:19 | 21:10 | 21:51 | 21:53 | 21:11 | 20:04 | 18:54 | 36 17:53 (WEA 2) | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | 16:48 (WEA 2) | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:48 | 17:17 (WEA 2) | 07:43 | 08:29 |
| | 16:42 | 17:36 | 18:27 | 23 17:11 (WEA 2) | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 36 17:53 (WEA 2) | 16:50 | 16:21 |
| 11 | 08:38 | 07:58 | 06:59 | 16:50 (WEA 2) | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | 17:16 (WEA 2) | 07:44 | 08:30 |
| | 16:43 | 17:38 | 18:29 | 19 17:09 (WEA 2) | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 37 17:53 (WEA 2) | 16:49 | 16:21 |
| 12 | 08:38 | 07:56 | 06:56 | 16:53 (WEA 2) | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 17:16 (WEA 2) | 07:46 | 08:31 |
| | 16:45 | 17:40 | 18:31 | 12 17:05 (WEA 2) | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 38 17:54 (WEA 2) | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | 16:46 (WEA 2) | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 17:15 (WEA 2) | 07:48 | 08:32 |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:54 | 21:49 | 21:49 | 21:03 | 19:55 | 18:45 | 38 17:53 (WEA 2) | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | 16:48 (WEA 2) | 06:40 | 05:42 | 05:12 | 05:28 | 06:14 | 07:04 | 07:54 | 17:15 (WEA 2) | 07:50 | 08:33 |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:49 | 21:01 | 19:52 | 18:43 | 37 17:52 (WEA 2) | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | 16:51 (WEA 2) | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:56 | 17:15 (WEA 2) | 07:52 | 08:34 |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 17:32 | 37 17:52 (WEA 2) | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 17:01 (WEA 2) | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | 17:15 (WEA 2) | 07:53 | 08:35 |
| | 16:51 | 17:47 | 4 17:05 (WEA 2) | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 37 17:52 (WEA 2) | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 16:54 (WEA 2) | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | 17:16 (WEA 2) | 07:55 | 08:36 |
| | 16:53 | 17:49 | 15 17:09 (WEA 2) | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 35 17:51 (WEA 2) | 16:40 | 16:21 |
| 18 | 08:33 | 07:44 | 16:52 (WEA 2) | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 17:16 (WEA 2) | 07:57 | 08:37 |
| | 16:54 | 17:51 | 20 17:12 (WEA 2) | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 35 17:51 (WEA 2) | 16:39 | 16:21 |
| 19 | 08:32 | 07:42 | 16:50 (WEA 2) | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 17:16 (WEA 2) | 07:58 | 08:37 |
| | 16:56 | 17:53 | 24 17:14 (WEA 2) | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | 33 17:49 (WEA 2) | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 16:48 (WEA 2) | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 17:17 (WEA 2) | 08:00 | 08:38 |
| | 16:58 | 17:54 | 28 17:16 (WEA 2) | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:49 | 19:38 | 18:30 | 31 17:48 (WEA 2) | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 16:47 (WEA 2) | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 17:18 (WEA 2) | 08:02 | 08:39 |
| | 16:59 | 17:56 | 30 17:17 (WEA 2) | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 29 17:47 (WEA 2) | 16:35 | 16:23 |
| 22 | 08:28 | 07:36 | 16:46 (WEA 2) | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 17:19 (WEA 2) | 08:04 | 08:39 |
| | 17:01 | 17:58 | 32 17:18 (WEA 2) | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:34 | 18:26 | 27 17:46 (WEA 2) | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 16:45 (WEA 2) | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 17:21 (WEA 2) | 08:05 | 08:40 |
| | 17:03 | 18:00 | 34 17:19 (WEA 2) | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 23 17:44 (WEA 2) | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 16:45 (WEA 2) | 06:28 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 17:23 (WEA 2) | 08:07 | 08:40 |
| | 17:05 | 18:02 | 35 17:20 (WEA 2) | 18:52 | 20:45 | 21:33 | 21:58 | 21:37 | 20:40 | 19:29 | 18:22 | 19 17:42 (WEA 2) | 16:31 | 16:24 |
| 25 | 08:25 | 07:30 | 16:43 (WEA 2) | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 08:14 | 16:26 (WEA 2) | 08:08 | 08:41 |
| | 17:06 | 18:04 | 36 17:19 (WEA 2) | 18:53 | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 18:20 | 13 16:39 (WEA 2) | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 16:43 (WEA 2) | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 08:16 | 17:21 (WEA 2) | 08:10 | 08:41 |
| | 17:08 | 18:06 | 37 17:20 (WEA 2) | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 18:18 | 16:29 | 16:25 | 16:29 |
| 27 | 08:22 | 07:25 | 16:43 (WEA 2) | 06:22 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 08:17 | 17:22 (WEA 2) | 08:12 | 08:41 |
| | 17:10 | 18:07 | 37 17:20 (WEA 2) | 18:57 | 20:50 | 21:37 | 21:58 | 21:33 | 20:33 | 19:22 | 18:16 | 16:29 | 16:26 | 16:26 |
| 28 | 08:21 | 07:23 | 16:43 (WEA 2) | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 08:19 | 17:23 (WEA 2) | 08:13 | 08:41 |
| | 17:12 | 18:09 | 37 17:20 (WEA 2) | 18:58 | 20:52 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 18:14 | 16:28 | 16:27 | 16:27 |
| 29 | 08:19 | | | 07:17 | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 08:21 | 17:24 (WEA 2) | 08:15 | 08:42 |
| | 17:14 | | | 20:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 18:12 | 16:27 | 16:28 | 16:28 |
| 30 | 08:18 | | | 07:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 08:23 | 17:25 (WEA 2) | 08:16 | 08:42 |
| | 17:15 | | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 18:10 | 16:26 | 16:29 | 16:29 |
| 31 | 08:16 | | | 07:12 | | 05:20 | | 05:51 | 06:41 | | 07:25 | | 08:16 | 08:42 |
| | 17:17 | | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | | 16:30 | 16:30 |
| Sonnenscheinstunden | 258 | 277 | | | | | | | | | | | 266 | 243 |
| astr.max.mögl.Beschattung | | 369 | | 360 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 739 | | |

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: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 18-NW - IP 18-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni |
|---------------------------|----------------|----------------|------------------------|------------------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 16:35 (WEA 2) 07:10 | 06:05 20:05 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 16:42 (WEA 2) 07:08 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 16:44 (WEA 2) 07:05 | 06:01 20:09 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:38 (WEA 2) 18:20 | 07:10 20:14 | 06:58 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:35 (WEA 2) 18:22 | 07:08 20:16 | 06:56 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:33 (WEA 2) 18:24 | 07:05 20:17 | 06:54 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:31 (WEA 2) 18:25 | 07:03 20:19 | 06:52 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:31 (WEA 2) 18:27 | 07:01 20:21 | 06:49 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:30 (WEA 2) 18:29 | 06:59 20:22 | 06:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:29 (WEA 2) 18:31 | 06:56 20:24 | 06:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:28 (WEA 2) 18:32 | 06:54 20:26 | 06:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:28 (WEA 2) 18:34 | 06:52 20:28 | 06:40 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 16:27 (WEA 2) 18:36 | 06:49 20:29 | 06:38 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:27 (WEA 2) 18:38 | 06:47 20:31 | 06:36 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 16:26 (WEA 2) 18:39 | 06:45 20:33 | 06:34 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:26 (WEA 2) 18:41 | 06:42 20:34 | 06:32 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:26 (WEA 2) 18:43 | 06:40 20:36 | 06:29 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:26 (WEA 2) 18:45 | 06:38 20:38 | 06:27 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:27 (WEA 2) 18:46 | 06:35 20:40 | 06:25 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 16:27 (WEA 2) 18:48 | 06:33 20:41 | 06:23 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 16:28 (WEA 2) 18:50 | 06:31 20:43 | 06:21 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 16:29 (WEA 2) 18:52 | 06:28 20:45 | 06:19 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:30 18:04 | 16:29 (WEA 2) 18:53 | 06:26 20:46 | 06:17 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | 16:30 (WEA 2) 18:55 | 06:24 20:48 | 06:15 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 16:31 (WEA 2) 18:57 | 06:22 20:50 | 06:13 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | 16:34 (WEA 2) 18:58 | 06:19 20:52 | 06:11 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | | 16:53 (WEA 2) 07:17 | 06:17 20:53 | 06:09 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:15 20:55 | 06:07 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | | 663 | 17 | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 18-NW - IP 18-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|-----|--------------------------------|------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 16:00 (WEA 2) 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 16:01 (WEA 2) 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 16:03 (WEA 2) 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | 16:05 (WEA 2) 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 16:09 (WEA 2) 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 16:18 (WEA 2) 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | 16:22 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | 16:22 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | 16:21 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | | 07:43 16:50 | 16:21 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | | 07:44 16:49 | 16:21 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 10 | 17:12 (WEA 2) 17:22 (WEA 2) | 07:46 16:47 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 17 | 17:07 (WEA 2) 17:24 (WEA 2) | 07:48 16:46 |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 21 | 17:05 (WEA 2) 17:26 (WEA 2) | 07:50 16:44 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 25 | 17:03 (WEA 2) 17:28 (WEA 2) | 07:52 16:43 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 27 | 17:02 (WEA 2) 17:29 (WEA 2) | 07:53 16:41 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 29 | 17:01 (WEA 2) 17:30 (WEA 2) | 07:55 16:40 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 31 | 17:00 (WEA 2) 17:31 (WEA 2) | 07:57 16:39 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 33 | 16:58 (WEA 2) 17:31 (WEA 2) | 07:58 16:37 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 34 | 16:57 (WEA 2) 17:31 (WEA 2) | 08:00 16:36 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 34 | 16:57 (WEA 2) 17:31 (WEA 2) | 08:02 16:35 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 35 | 16:57 (WEA 2) 17:32 (WEA 2) | 08:04 16:34 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 36 | 16:56 (WEA 2) 17:32 (WEA 2) | 08:05 16:33 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 36 | 16:56 (WEA 2) 17:32 (WEA 2) | 08:07 16:31 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 34 | 15:57 (WEA 2) 16:31 (WEA 2) | 08:08 16:30 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 34 | 15:57 (WEA 2) 16:31 (WEA 2) | 08:10 16:29 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 34 | 15:57 (WEA 2) 16:31 (WEA 2) | 08:12 16:29 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 32 | 15:58 (WEA 2) 16:30 (WEA 2) | 08:13 16:28 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 32 | 15:57 (WEA 2) 16:29 (WEA 2) | 08:15 16:27 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 30 | 15:58 (WEA 2) 16:28 (WEA 2) | 08:16 16:26 |
| 31 | 05:51 21:26 | 06:41 20:25 | 07:25 17:08 | 08:22 17:05 | 28 | 15:59 (WEA 2) 16:27 (WEA 2) | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | | 592 | 95 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 18-SW - IP 18-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|----------------|------------------------|------------------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 16:35 (WEA 2) 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 16:37 (WEA 2) 17:07 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 16:42 (WEA 2) 17:08 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 16:50 (WEA 2) 17:10 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 16:59 (WEA 2) 17:10 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 16:59 (WEA 2) 17:10 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:44 (WEA 2) 07:08 | 16:49 (WEA 2) 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:39 (WEA 2) 07:05 | 16:53 (WEA 2) 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:37 (WEA 2) 07:03 | 16:56 (WEA 2) 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:36 (WEA 2) 07:01 | 16:59 (WEA 2) 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:35 (WEA 2) 06:59 | 17:00 (WEA 2) 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:33 (WEA 2) 06:56 | 17:01 (WEA 2) 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:32 (WEA 2) 06:54 | 17:02 (WEA 2) 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:32 (WEA 2) 06:52 | 17:03 (WEA 2) 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 16:31 (WEA 2) 06:49 | 17:04 (WEA 2) 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:31 (WEA 2) 06:47 | 17:04 (WEA 2) 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 16:29 (WEA 2) 06:45 | 17:04 (WEA 2) 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:29 (WEA 2) 06:42 | 17:04 (WEA 2) 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:29 (WEA 2) 06:40 | 17:04 (WEA 2) 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:29 (WEA 2) 06:38 | 17:04 (WEA 2) 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:29 (WEA 2) 06:35 | 17:04 (WEA 2) 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 16:29 (WEA 2) 06:33 | 17:04 (WEA 2) 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 16:30 (WEA 2) 06:31 | 17:04 (WEA 2) 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 16:31 (WEA 2) 06:28 | 17:03 (WEA 2) 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:30 18:04 | 16:30 (WEA 2) 06:26 | 17:02 (WEA 2) 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | 16:31 (WEA 2) 06:24 | 17:01 (WEA 2) 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 16:32 (WEA 2) 06:22 | 17:00 (WEA 2) 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | 16:34 (WEA 2) 06:19 | 16:59 (WEA 2) 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | | 07:17 20:00 | | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | | 632 | 46 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 18-SW - IP 18-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | Dezember | |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|--------------------------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 16:05 (WEA 2) 16:27 (WEA 2) | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 16:07 (WEA 2) 16:25 (WEA 2) | 08:19 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 16:10 (WEA 2) 16:22 (WEA 2) | 08:21 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:01 | | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | | 07:43 16:50 | | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 13 | 17:13 (WEA 2) 17:26 (WEA 2) | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 19 | 17:10 (WEA 2) 17:29 (WEA 2) | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 23 | 17:07 (WEA 2) 17:30 (WEA 2) | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 26 | 17:06 (WEA 2) 17:32 (WEA 2) | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 29 | 17:04 (WEA 2) 17:33 (WEA 2) | 07:52 16:43 | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 31 | 17:03 (WEA 2) 17:34 (WEA 2) | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 32 | 17:02 (WEA 2) 17:34 (WEA 2) | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 33 | 17:02 (WEA 2) 17:35 (WEA 2) | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 34 | 17:00 (WEA 2) 17:34 (WEA 2) | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 35 | 17:00 (WEA 2) 17:35 (WEA 2) | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 36 | 16:59 (WEA 2) 17:35 (WEA 2) | 08:02 16:35 | 08:39 16:22 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 36 | 16:59 (WEA 2) 17:35 (WEA 2) | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 36 | 16:59 (WEA 2) 17:35 (WEA 2) | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 35 | 16:59 (WEA 2) 17:34 (WEA 2) | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 34 | 16:00 (WEA 2) 16:34 (WEA 2) | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 34 | 16:00 (WEA 2) 16:34 (WEA 2) | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 32 | 16:01 (WEA 2) 16:33 (WEA 2) | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 31 | 16:01 (WEA 2) 16:32 (WEA 2) | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 30 | 16:01 (WEA 2) 16:31 (WEA 2) | 08:15 16:27 | 08:42 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 28 | 16:02 (WEA 2) 16:30 (WEA 2) | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | 07:25 17:08 | 08:25 17:05 | 25 | 16:03 (WEA 2) 16:28 (WEA 2) | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | 632 | | 52 | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 19-NW - IP 19-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|---------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 15:46 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 15:47 (WEA 2) 16:10 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 15:48 (WEA 2) 08:11 17:23 | 15:48 (WEA 2) 16:09 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 15:45 (WEA 2) 08:10 17:25 | 15:51 (WEA 2) 16:08 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 15:45 (WEA 2) 08:08 17:26 | 15:53 (WEA 2) 16:06 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 15:44 (WEA 2) 08:06 17:28 | 15:57 (WEA 2) 16:02 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 15:44 (WEA 2) 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 | |
| 8 | 08:40 16:39 | 15:43 (WEA 2) 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 | |
| 9 | 08:39 16:41 | 15:43 (WEA 2) 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 | |
| 10 | 08:39 16:42 | 15:42 (WEA 2) 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 | |
| 11 | 08:38 16:43 | 15:42 (WEA 2) 07:58 17:38 | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 | |
| 12 | 08:38 16:45 | 15:41 (WEA 2) 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 | |
| 13 | 08:37 16:46 | 15:41 (WEA 2) 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 | |
| 14 | 08:36 16:48 | 15:41 (WEA 2) 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 | |
| 15 | 08:35 16:49 | 15:41 (WEA 2) 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 | |
| 16 | 08:34 16:51 | 15:40 (WEA 2) 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 | |
| 17 | 08:34 16:53 | 15:41 (WEA 2) 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 | |
| 18 | 08:33 16:54 | 15:41 (WEA 2) 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 | |
| 19 | 08:32 16:56 | 15:41 (WEA 2) 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 | |
| 20 | 08:31 16:58 | 15:41 (WEA 2) 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 | |
| 21 | 08:29 16:59 | 15:40 (WEA 2) 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 | |
| 22 | 08:28 17:01 | 15:41 (WEA 2) 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 | |
| 23 | 08:27 17:03 | 15:41 (WEA 2) 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 | |
| 24 | 08:26 17:05 | 15:41 (WEA 2) 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 | |
| 25 | 08:25 17:06 | 15:42 (WEA 2) 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 | |
| 26 | 08:23 17:08 | 15:43 (WEA 2) 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 | |
| 27 | 08:22 17:10 | 15:43 (WEA 2) 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 | |
| 28 | 08:21 17:12 | 15:43 (WEA 2) 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 | |
| 29 | 08:19 17:13 | 15:44 (WEA 2) 16:13 (WEA 2) | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 | |
| 30 | 08:18 17:15 | 15:44 (WEA 2) 16:12 (WEA 2) | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 | |
| 31 | 08:16 17:17 | 15:46 (WEA 2) 16:12 (WEA 2) | 07:12 20:04 | 06:04 21:42 | 05:20 21:42 | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 695 | 104 | | | | | |

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: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 19-NW - IP 19-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----|--------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | | 08:19 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | | 08:21 16:24 |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:00 | | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 6 | 15:26 (WEA 2) 15:32 (WEA 2) |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 13 | 15:23 (WEA 2) 15:36 (WEA 2) |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 17 | 15:21 (WEA 2) 15:38 (WEA 2) |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 21 | 15:19 (WEA 2) 15:40 (WEA 2) |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 23 | 15:18 (WEA 2) 15:41 (WEA 2) |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 07:43 16:50 | 25 | 15:17 (WEA 2) 15:42 (WEA 2) |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 26 | 15:17 (WEA 2) 15:43 (WEA 2) |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 28 | 15:16 (WEA 2) 15:44 (WEA 2) |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 29 | 15:16 (WEA 2) 15:45 (WEA 2) |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 29 | 15:16 (WEA 2) 15:45 (WEA 2) |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 30 | 15:16 (WEA 2) 15:46 (WEA 2) |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 30 | 15:16 (WEA 2) 15:46 (WEA 2) |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 31 | 15:16 (WEA 2) 15:47 (WEA 2) |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 31 | 15:15 (WEA 2) 15:46 (WEA 2) |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 31 | 15:15 (WEA 2) 15:46 (WEA 2) |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 31 | 15:16 (WEA 2) 15:47 (WEA 2) |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 31 | 15:16 (WEA 2) 15:47 (WEA 2) |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 08:04 16:34 | 30 | 15:17 (WEA 2) 15:47 (WEA 2) |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 29 | 15:18 (WEA 2) 15:47 (WEA 2) |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 28 | 15:18 (WEA 2) 15:46 (WEA 2) |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 08:08 16:30 | 28 | 15:19 (WEA 2) 15:47 (WEA 2) |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 08:10 16:29 | 27 | 15:20 (WEA 2) 15:47 (WEA 2) |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 08:12 16:29 | 26 | 15:21 (WEA 2) 15:47 (WEA 2) |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 08:13 16:28 | 25 | 15:21 (WEA 2) 15:46 (WEA 2) |
| 29 | 05:48 21:30 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 08:15 16:27 | 24 | 15:22 (WEA 2) 15:46 (WEA 2) |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 08:16 16:26 | 23 | 15:22 (WEA 2) 15:45 (WEA 2) |
| 31 | 05:51 21:26 | 06:41 20:25 | | 08:25 17:08 | | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | | 672 | | 130 |

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 | Schattenanfang (WEA mit erstem Schatten) | Schattende (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 19-SW - IP 19-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|---------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 15:47 (WEA 2) 16:13 (WEA 2) | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 15:48 (WEA 2) 16:12 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 15:49 (WEA 2) 16:11 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 15:51 (WEA 2) 16:11 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 15:50 (WEA 2) 08:08 17:26 | 15:53 (WEA 2) 16:09 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 15:47 (WEA 2) 08:06 17:28 | 15:56 (WEA 2) 16:06 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 15:47 (WEA 2) 08:05 17:30 | 15:58 (WEA 2) 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 15:45 (WEA 2) 08:03 17:32 | 15:58 (WEA 2) 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 15:45 (WEA 2) 08:01 17:34 | 15:58 (WEA 2) 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 15:45 (WEA 2) 07:59 17:36 | 15:58 (WEA 2) 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 15:44 (WEA 2) 07:58 17:38 | 15:58 (WEA 2) 17:38 | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 15:43 (WEA 2) 07:56 17:40 | 15:58 (WEA 2) 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 15:43 (WEA 2) 07:54 17:41 | 15:58 (WEA 2) 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 15:43 (WEA 2) 07:52 17:43 | 15:58 (WEA 2) 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 15:42 (WEA 2) 07:50 17:45 | 15:58 (WEA 2) 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 15:42 (WEA 2) 07:48 17:47 | 15:58 (WEA 2) 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 15:42 (WEA 2) 07:46 17:49 | 15:58 (WEA 2) 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 15:42 (WEA 2) 07:44 17:51 | 15:58 (WEA 2) 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 15:42 (WEA 2) 07:42 17:53 | 15:58 (WEA 2) 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:31 16:58 | 15:43 (WEA 2) 07:40 17:54 | 15:58 (WEA 2) 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 15:42 (WEA 2) 07:38 17:56 | 15:58 (WEA 2) 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 15:42 (WEA 2) 07:36 17:58 | 15:58 (WEA 2) 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 15:43 (WEA 2) 07:34 18:00 | 15:58 (WEA 2) 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 15:43 (WEA 2) 07:32 18:02 | 15:58 (WEA 2) 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 15:43 (WEA 2) 07:30 18:04 | 15:58 (WEA 2) 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 15:44 (WEA 2) 07:27 18:06 | 15:58 (WEA 2) 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 15:44 (WEA 2) 07:25 18:07 | 15:58 (WEA 2) 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 15:44 (WEA 2) 07:23 18:09 | 15:58 (WEA 2) 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | 15:45 (WEA 2) 16:14 (WEA 2) | 15:58 (WEA 2) | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 15:45 (WEA 2) 16:14 (WEA 2) | 15:58 (WEA 2) | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 15:47 (WEA 2) 16:14 (WEA 2) | 15:58 (WEA 2) | 07:12 20:04 | 06:04 20:57 | 05:20 21:42 | 05:14 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 659 | 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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 19-SW - IP 19-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | November | | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | | 08:19 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | | 08:21 16:24 |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:00 | | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 12 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 17 | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 20 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 22 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 24 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 07:43 16:50 | 26 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 28 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 29 | 08:32 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 29 | 08:33 16:21 |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 30 | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 30 | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 31 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 31 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 31 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 31 | 08:38 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 31 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 30 | 08:39 16:22 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 08:04 16:34 | 29 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 28 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 29 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 08:08 16:30 | 28 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 08:10 16:29 | 27 | 08:41 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 08:12 16:29 | 25 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 08:13 16:28 | 24 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 08:15 16:27 | 23 | 08:42 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 08:16 16:26 | 21 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | 07:25 17:08 | | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | | 686 | | 96 |

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 | Schattenanfang (WEA mit erstem Schatten) | Schattende (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 20-SO - IP 20-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 15:49 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 15:49 (WEA 2) 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 15:50 (WEA 2) 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 15:52 (WEA 2) 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 15:52 (WEA 2) 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 15:54 (WEA 2) 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 15:55 (WEA 2) 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 15:57 (WEA 2) 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:00 (WEA 2) 16:09 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 15:55 (WEA 2) 16:01 (WEA 2) | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 15:53 (WEA 2) 16:03 (WEA 2) | 07:58 17:38 | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 15:51 (WEA 2) 16:05 (WEA 2) | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 15:50 (WEA 2) 16:07 (WEA 2) | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 15:49 (WEA 2) 16:08 (WEA 2) | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 15:49 (WEA 2) 16:09 (WEA 2) | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 15:48 (WEA 2) 16:11 (WEA 2) | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 15:48 (WEA 2) 16:12 (WEA 2) | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 15:48 (WEA 2) 16:13 (WEA 2) | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 15:48 (WEA 2) 16:14 (WEA 2) | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:30 16:58 | 15:48 (WEA 2) 16:15 (WEA 2) | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 15:47 (WEA 2) 16:15 (WEA 2) | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 15:47 (WEA 2) 16:16 (WEA 2) | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 15:47 (WEA 2) 16:17 (WEA 2) | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 15:46 (WEA 2) 16:17 (WEA 2) | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 15:47 (WEA 2) 16:18 (WEA 2) | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 15:47 (WEA 2) 16:19 (WEA 2) | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 15:47 (WEA 2) 16:19 (WEA 2) | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 15:47 (WEA 2) 16:19 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 15:48 (WEA 2) 16:19 (WEA 2) | 07:21 18:07 | 06:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 15:48 (WEA 2) 16:19 (WEA 2) | 07:19 18:07 | 06:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 15:49 (WEA 2) 16:20 (WEA 2) | 07:17 18:04 | 06:13 20:04 | 06:05 20:57 | 05:20 21:42 | 05:15 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 549 | 203 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 20-SO - IP 20-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----|------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 10 | 15:29 (WEA 2) 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 16 | 15:26 (WEA 2) 16:24 |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:00 | 19 | 15:23 (WEA 2) 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 23 | 15:22 (WEA 2) 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 25 | 15:21 (WEA 2) 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 27 | 15:21 (WEA 2) 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 28 | 15:21 (WEA 2) 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 29 | 15:20 (WEA 2) 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 07:43 16:50 | 30 | 15:20 (WEA 2) 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 30 | 15:20 (WEA 2) 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 31 | 15:20 (WEA 2) 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 31 | 15:20 (WEA 2) 16:21 |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 32 | 15:20 (WEA 2) 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 32 | 15:20 (WEA 2) 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 32 | 15:20 (WEA 2) 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 31 | 15:21 (WEA 2) 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 31 | 15:20 (WEA 2) 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 30 | 15:21 (WEA 2) 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 29 | 15:22 (WEA 2) 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 28 | 15:23 (WEA 2) 16:22 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 08:04 16:34 | 27 | 15:24 (WEA 2) 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 26 | 15:25 (WEA 2) 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 25 | 15:25 (WEA 2) 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 08:08 16:30 | 24 | 15:26 (WEA 2) 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 08:10 16:29 | 23 | 15:27 (WEA 2) 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 08:12 16:29 | 20 | 15:29 (WEA 2) 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 08:13 16:28 | 19 | 15:29 (WEA 2) 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 08:15 16:27 | 17 | 15:31 (WEA 2) 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 08:16 16:26 | 14 | 15:32 (WEA 2) 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | 07:25 17:08 | | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | | 739 | | 17 |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 20-SW - IP 20-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 15:48 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 15:48 (WEA 2) 16:17 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 15:49 (WEA 2) 16:16 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 15:51 (WEA 2) 16:16 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 15:52 (WEA 2) 16:15 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 15:53 (WEA 2) 16:13 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 15:55 (WEA 2) 16:11 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 15:58 (WEA 2) 16:09 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 15:52 (WEA 2) 16:00 (WEA 2) | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 15:50 (WEA 2) 16:02 (WEA 2) | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:12 | 05:13 21:51 |
| 11 | 08:38 16:43 | 15:49 (WEA 2) 16:04 (WEA 2) | 07:58 17:38 | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 15:48 (WEA 2) 16:05 (WEA 2) | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 15:47 (WEA 2) 16:06 (WEA 2) | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 15:46 (WEA 2) 16:08 (WEA 2) | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 15:46 (WEA 2) 16:09 (WEA 2) | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 15:46 (WEA 2) 16:10 (WEA 2) | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 15:45 (WEA 2) 16:11 (WEA 2) | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:23 | 05:12 21:56 |
| 18 | 08:33 16:54 | 15:45 (WEA 2) 16:12 (WEA 2) | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 15:45 (WEA 2) 16:13 (WEA 2) | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:26 | 05:12 21:56 |
| 20 | 08:30 16:58 | 15:45 (WEA 2) 16:14 (WEA 2) | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 15:45 (WEA 2) 16:14 (WEA 2) | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 15:45 (WEA 2) 16:15 (WEA 2) | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 15:45 (WEA 2) 16:16 (WEA 2) | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 15:45 (WEA 2) 16:16 (WEA 2) | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 15:45 (WEA 2) 16:17 (WEA 2) | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 15:46 (WEA 2) 16:18 (WEA 2) | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 15:46 (WEA 2) 16:17 (WEA 2) | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 15:45 (WEA 2) 16:17 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:14 | 15:46 (WEA 2) 16:18 (WEA 2) | 07:21 18:09 | 06:17 19:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 15:46 (WEA 2) 16:17 (WEA 2) | 07:19 18:07 | 06:15 19:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 15:48 (WEA 2) 16:18 (WEA 2) | 07:17 18:04 | 06:13 20:04 | 06:05 21:04 | 05:19 21:42 | 05:15 21:57 |
| Sonnenscheinstunden | | 258 | 277 | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | | 591 | 180 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 20-SW - IP 20-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | November | | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----|--|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | | 08:19 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 12 | 15:27 (WEA 2) 08:21 15:39 (WEA 2) 16:24 |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:00 | 18 | 15:24 (WEA 2) 08:22 15:42 (WEA 2) 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 20 | 15:23 (WEA 2) 08:23 15:43 (WEA 2) 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 24 | 15:21 (WEA 2) 08:25 15:45 (WEA 2) 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 26 | 15:20 (WEA 2) 08:26 15:46 (WEA 2) 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 27 | 15:20 (WEA 2) 08:27 15:47 (WEA 2) 16:22 |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 28 | 15:19 (WEA 2) 08:28 15:47 (WEA 2) 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:48 18:52 | 07:43 16:50 | 29 | 15:19 (WEA 2) 08:29 15:48 (WEA 2) 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 31 | 15:18 (WEA 2) 08:30 15:49 (WEA 2) 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 31 | 15:18 (WEA 2) 08:32 15:49 (WEA 2) 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 32 | 15:18 (WEA 2) 08:33 15:50 (WEA 2) 16:21 |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 32 | 15:18 (WEA 2) 08:33 15:50 (WEA 2) 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 32 | 15:18 (WEA 2) 08:34 15:50 (WEA 2) 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 31 | 15:19 (WEA 2) 08:35 15:50 (WEA 2) 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 32 | 15:19 (WEA 2) 08:36 15:51 (WEA 2) 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 31 | 15:19 (WEA 2) 08:37 15:50 (WEA 2) 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 31 | 15:19 (WEA 2) 08:38 15:50 (WEA 2) 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 30 | 15:20 (WEA 2) 08:38 15:50 (WEA 2) 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 29 | 15:21 (WEA 2) 08:39 15:50 (WEA 2) 16:22 |
| 22 | 05:38 21:40 | 06:27 20:44 | 07:17 19:34 | 08:08 18:26 | 08:04 16:34 | 29 | 15:21 (WEA 2) 08:39 15:50 (WEA 2) 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 28 | 15:22 (WEA 2) 08:40 15:50 (WEA 2) 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 27 | 15:22 (WEA 2) 08:40 15:49 (WEA 2) 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | 08:08 16:30 | 26 | 15:23 (WEA 2) 08:41 15:26 (WEA 2) 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | 08:10 16:29 | 24 | 15:25 (WEA 2) 08:41 15:49 (WEA 2) 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | 08:12 16:29 | 23 | 15:26 (WEA 2) 08:41 15:49 (WEA 2) 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | 08:13 16:28 | 22 | 15:26 (WEA 2) 08:41 15:48 (WEA 2) 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 08:15 16:27 | 20 | 15:28 (WEA 2) 08:42 15:48 (WEA 2) 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 08:16 16:26 | 17 | 15:29 (WEA 2) 08:42 15:46 (WEA 2) 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | 08:25 17:08 | | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | | 742 | | 37 |

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 | Schattenanfang (WEA mit erstem Schatten) | Schattende (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 21-NW - IP 21-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:11 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:11 (WEA 2) 16:39 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:10 (WEA 2) 16:39 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:11 (WEA 2) 16:40 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:11 (WEA 2) 16:40 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:11 (WEA 2) 16:40 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:11 (WEA 2) 16:40 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:11 (WEA 2) 16:40 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:11 (WEA 2) 16:39 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:13 (WEA 2) 16:40 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:14 (WEA 2) 16:39 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:15 (WEA 2) 16:38 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:16 (WEA 2) 16:37 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:18 (WEA 2) 16:35 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 16:20 (WEA 2) 16:33 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:24 (WEA 2) 16:29 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 16:18 (WEA 2) 16:27 (WEA 2) | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 16:16 (WEA 2) 16:30 (WEA 2) | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 16:15 (WEA 2) 16:33 (WEA 2) | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 16:14 (WEA 2) 16:34 (WEA 2) | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 16:13 (WEA 2) 16:35 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | 16:12 (WEA 2) 16:36 (WEA 2) | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:12 (WEA 2) 16:37 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:12 (WEA 2) 16:38 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 158 | 389 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 21-NW - IP 21-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|-------|--------|-----------|---------|------------------|----------|--------------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 15:42 (WEA 2) 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 27 16:09 (WEA 2) 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 15:41 (WEA 2) 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 28 16:09 (WEA 2) 16:25 |
| 3 | 05:17 | 05:56 | 06:46 | 07:36 | | 07:30 | 15:41 (WEA 2) 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 28 16:09 (WEA 2) 16:24 |
| 4 | 05:18 | 05:57 | 06:48 | 07:37 | | 07:32 | 15:40 (WEA 2) 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:00 | 30 16:10 (WEA 2) 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 15:40 (WEA 2) 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 30 16:10 (WEA 2) 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 15:40 (WEA 2) 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 30 16:10 (WEA 2) 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 15:41 (WEA 2) 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 29 16:10 (WEA 2) 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 15:41 (WEA 2) 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 29 16:10 (WEA 2) 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 15:41 (WEA 2) 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 29 16:10 (WEA 2) 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:48 | | 07:43 | 15:42 (WEA 2) 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 28 16:10 (WEA 2) 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 15:43 (WEA 2) 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 26 16:09 (WEA 2) 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 15:43 (WEA 2) 08:31 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 26 16:09 (WEA 2) 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 15:44 (WEA 2) 08:32 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | 24 16:08 (WEA 2) 16:21 |
| 14 | 05:28 | 06:13 | 07:04 | 07:54 | | 07:50 | 15:46 (WEA 2) 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | 22 16:08 (WEA 2) 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 15:47 (WEA 2) 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | 20 16:07 (WEA 2) 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 15:48 (WEA 2) 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | 18 16:06 (WEA 2) 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 15:50 (WEA 2) 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | 14 16:04 (WEA 2) 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 15:52 (WEA 2) 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 9 16:01 (WEA 2) 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 08:38 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 16:22 |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | | 08:00 | 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | | 08:02 | 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | | 16:35 | 16:22 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | | 08:04 | 08:39 |
| | 21:40 | 20:44 | 19:33 | 18:26 | | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | | 08:05 | 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | | 08:07 | 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | | 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | | 08:08 | 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | | 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | 15:52 (WEA 2) | 08:10 | 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | 8 16:00 (WEA 2) | 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | 15:49 (WEA 2) | 08:12 | 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | 14 16:03 (WEA 2) | 16:29 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | 15:47 (WEA 2) | 08:13 | 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | 18 16:05 (WEA 2) | 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | 15:44 (WEA 2) | 08:15 | 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | 22 16:06 (WEA 2) | 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | 15:43 (WEA 2) | 08:16 | 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | 24 16:07 (WEA 2) | 16:26 | 16:29 |
| 31 | 05:51 | 06:41 | | 07:25 | 15:42 (WEA 2) | | 08:42 |
| | 21:26 | 20:25 | | 17:08 | 26 16:08 (WEA 2) | | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 112 | | 447 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 21-SW - IP 21-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|------------------------|------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:13 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:12 (WEA 2) 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:12 (WEA 2) 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:12 (WEA 2) 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:12 (WEA 2) 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:12 (WEA 2) 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:12 (WEA 2) 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:12 (WEA 2) 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:13 (WEA 2) 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:14 (WEA 2) 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:15 (WEA 2) 17:38 | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:15 (WEA 2) 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:16 (WEA 2) 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:18 (WEA 2) 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 16:20 (WEA 2) 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:22 (WEA 2) 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:34 16:53 | 07:46 17:49 | 16:34 (WEA 2) 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 06:42 18:41 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 06:40 18:43 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 16:20 (WEA 2) 18:04 | 07:30 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 16:18 (WEA 2) 18:06 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 16:17 (WEA 2) 18:07 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 16:15 (WEA 2) 18:09 | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | 16:15 (WEA 2) 18:09 | 07:21 18:09 | 06:17 19:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:14 (WEA 2) 18:09 | 07:19 18:09 | 06:15 19:01 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:14 (WEA 2) 18:09 | 07:17 18:09 | 06:13 19:02 | 06:05 20:57 | 05:19 21:42 | 05:15 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 134 | 414 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 21-SW - IP 21-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|-------|--------|-----------|---------|------------------|----------|---------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 15:43 (WEA 2) 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 28 | 16:11 (WEA 2) 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 15:42 (WEA 2) 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 29 | 16:11 (WEA 2) 16:25 |
| 3 | 05:17 | 05:56 | 06:46 | 07:36 | | 07:30 | 15:42 (WEA 2) 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 29 | 16:11 (WEA 2) 16:24 |
| 4 | 05:18 | 05:57 | 06:48 | 07:37 | | 07:32 | 15:42 (WEA 2) 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:00 30 | 16:12 (WEA 2) 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 15:42 (WEA 2) 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 30 | 16:12 (WEA 2) 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 15:42 (WEA 2) 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 30 | 16:12 (WEA 2) 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 15:42 (WEA 2) 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 30 | 16:12 (WEA 2) 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 15:43 (WEA 2) 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 28 | 16:11 (WEA 2) 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 15:43 (WEA 2) 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 28 | 16:11 (WEA 2) 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:48 | | 07:43 | 15:44 (WEA 2) 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 27 | 16:11 (WEA 2) 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 15:45 (WEA 2) 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 25 | 16:10 (WEA 2) 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 15:46 (WEA 2) 08:31 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 24 | 16:10 (WEA 2) 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 15:47 (WEA 2) 08:32 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 22 | 16:09 (WEA 2) 16:21 |
| 14 | 05:28 | 06:13 | 07:04 | 07:54 | | 07:50 | 15:48 (WEA 2) 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 20 | 16:08 (WEA 2) 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 15:50 (WEA 2) 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 17 | 16:07 (WEA 2) 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 15:51 (WEA 2) 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 15 | 16:06 (WEA 2) 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 15:54 (WEA 2) 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 10 | 16:04 (WEA 2) 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 08:37 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 16:22 |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | | 08:00 | 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | | 08:02 | 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | | 16:35 | 16:22 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | | 08:04 | 08:39 |
| | 21:40 | 20:44 | 19:33 | 18:26 | | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | | 08:05 | 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | | 08:07 | 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | | 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | 15:55 (WEA 2) | 08:08 | 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | 5 16:00 (WEA 2) | 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | 15:51 (WEA 2) | 08:10 | 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | 13 16:04 (WEA 2) | 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | 15:49 (WEA 2) | 08:12 | 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | 18 16:07 (WEA 2) | 16:29 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | 15:47 (WEA 2) | 08:13 | 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | 21 16:08 (WEA 2) | 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | 15:45 (WEA 2) | 08:15 | 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | 23 16:08 (WEA 2) | 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | 15:44 (WEA 2) | 08:16 | 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | 25 16:09 (WEA 2) | 16:26 | 16:29 |
| 31 | 05:51 | 06:41 | | 07:25 | 15:43 (WEA 2) | | 08:42 |
| | 21:26 | 20:25 | | 17:08 | 27 16:10 (WEA 2) | | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 132 | | 422 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 22-NW - IP 22-NW
Annahmen für Schattenwurfberechnung

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

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

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 22-NW - IP 22-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|-------|--------|-----------|---------|----|---------------------|------------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 16:03 (WEA 2) 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 19 16:22 (WEA 2) 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 16:04 (WEA 2) 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 18 16:22 (WEA 2) 16:25 |
| 3 | 05:17 | 05:56 | 06:46 | 07:36 | | 07:30 | 16:05 (WEA 2) 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 17 16:22 (WEA 2) 16:24 |
| 4 | 05:18 | 05:57 | 06:48 | 07:37 | | 07:32 | 16:06 (WEA 2) 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:00 | 16 16:22 (WEA 2) 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 16:07 (WEA 2) 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 15 16:22 (WEA 2) 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 16:08 (WEA 2) 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 14 16:22 (WEA 2) 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 16:08 (WEA 2) 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 13 16:21 (WEA 2) 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 16:09 (WEA 2) 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 12 16:21 (WEA 2) 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 16:10 (WEA 2) 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 10 16:20 (WEA 2) 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:47 | | 07:43 | 16:11 (WEA 2) 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 8 16:19 (WEA 2) 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 16:12 (WEA 2) 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 5 16:17 (WEA 2) 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 16:13 (WEA 2) 08:31 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 2 16:15 (WEA 2) 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 08:32 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | 16:21 |
| 14 | 05:28 | 06:13 | 07:04 | 07:54 | | 07:50 | 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 08:37 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 16:22 |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | | 08:00 | 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | | 08:02 | 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | | 16:35 | 16:22 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | | 08:04 | 08:39 |
| | 21:39 | 20:44 | 19:33 | 18:26 | | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | | 08:05 | 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | | 17:08 (WEA 2) 08:07 | 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | 5 | 17:13 (WEA 2) 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | | 16:04 (WEA 2) 08:08 | 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | 13 | 16:17 (WEA 2) 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | | 16:02 (WEA 2) 08:10 | 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | 17 | 16:19 (WEA 2) 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | | 16:01 (WEA 2) 08:12 | 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | 19 | 16:20 (WEA 2) 16:29 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | | 16:01 (WEA 2) 08:13 | 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | 20 | 16:21 (WEA 2) 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | | 16:01 (WEA 2) 08:15 | 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | 20 | 16:21 (WEA 2) 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | | 16:02 (WEA 2) 08:16 | 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | 20 | 16:22 (WEA 2) 16:26 | 16:29 |
| 31 | 05:51 | 06:41 | | 07:25 | | 16:02 (WEA 2) | 08:42 |
| | 21:26 | 20:25 | | 17:08 | 20 | 16:22 (WEA 2) | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 134 | | 149 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 22-SO - IP 22-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:33 (WEA 2) 16:40 (WEA 2) | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:32 (WEA 2) 16:39 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:31 (WEA 2) 16:38 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:31 (WEA 2) 16:39 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:30 (WEA 2) 16:38 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:29 (WEA 2) 16:37 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:29 (WEA 2) 16:36 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:29 (WEA 2) 16:35 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:28 (WEA 2) 16:34 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:29 (WEA 2) 16:34 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:30 (WEA 2) 16:34 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:30 (WEA 2) 16:33 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:30 (WEA 2) 16:32 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:29 18:04 | | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:05 | | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:36 (WEA 2) 16:41 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 5 | 78 | | | | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 22-SO - IP 22-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|---|--------------------------------|--------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 15:58 (WEA 2) 16:03 (WEA 2) |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 15:58 (WEA 2) 16:04 (WEA 2) |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 15:58 (WEA 2) 16:05 (WEA 2) |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:00 | 15:59 (WEA 2) 16:06 (WEA 2) |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 15:59 (WEA 2) 16:07 (WEA 2) |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 16:00 (WEA 2) 16:08 (WEA 2) |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | 16:01 (WEA 2) 16:08 (WEA 2) |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | 16:02 (WEA 2) 16:09 (WEA 2) |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | 16:03 (WEA 2) 16:10 (WEA 2) |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:47 18:52 | | 07:43 16:50 | 16:04 (WEA 2) 16:11 (WEA 2) |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | | 07:44 16:49 | 16:07 (WEA 2) 16:12 (WEA 2) |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | | 07:46 16:47 | 16:12 (WEA 2) 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | | 07:48 16:46 | 16:21 16:21 |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | | 07:50 16:44 | 16:21 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | | 07:52 16:43 | 16:21 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | | 07:53 16:41 | 16:21 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | | 07:55 16:40 | 16:21 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | | 07:57 16:39 | 16:21 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | | 07:58 16:37 | 16:21 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | | 08:00 16:36 | 16:21 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | | 08:02 16:35 | 16:21 16:22 |
| 22 | 05:38 21:39 | 06:27 20:44 | 07:17 19:33 | 08:08 18:26 | | 08:04 16:34 | 16:21 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | | 08:05 16:33 | 16:21 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | | 08:07 16:31 | 16:21 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | | 08:08 16:30 | 16:21 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | | 08:10 16:29 | 16:21 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | | 08:12 16:29 | 16:21 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | | 08:13 16:28 | 16:21 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | 2 | 15:59 (WEA 2) 16:01 (WEA 2) | 16:21 16:27 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 4 | 15:58 (WEA 2) 16:02 (WEA 2) | 16:21 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | 07:32 19:14 | 08:24 17:08 | 4 | 15:58 (WEA 2) 16:02 (WEA 2) | 16:21 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 10 | | 74 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 22-SW - IP 22-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:31 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:30 (WEA 2) 16:49 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:29 (WEA 2) 16:50 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:29 (WEA 2) 16:52 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:28 (WEA 2) 16:52 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:28 (WEA 2) 16:53 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:27 (WEA 2) 16:53 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:27 (WEA 2) 16:53 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:27 (WEA 2) 16:53 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:28 (WEA 2) 16:54 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:29 (WEA 2) 16:54 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:29 (WEA 2) 16:53 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:30 (WEA 2) 16:53 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:30 (WEA 2) 16:52 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 16:31 (WEA 2) 16:51 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:33 (WEA 2) 16:50 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 16:34 (WEA 2) 16:47 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:38 (WEA 2) 16:43 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:29 18:04 | | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:05 | | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:35 (WEA 2) 16:43 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:33 (WEA 2) 16:46 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | | | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | 21 | 382 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 22-SW - IP 22-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|--------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 15:57 (WEA 2) 16:23 (WEA 2) |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 15:57 (WEA 2) 16:23 (WEA 2) |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 15:57 (WEA 2) 16:23 (WEA 2) |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:00 | 15:57 (WEA 2) 16:23 (WEA 2) |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 15:58 (WEA 2) 16:22 (WEA 2) |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 15:58 (WEA 2) 16:22 (WEA 2) |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | 15:59 (WEA 2) 16:22 (WEA 2) |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | 16:00 (WEA 2) 16:21 (WEA 2) |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | 16:01 (WEA 2) 16:20 (WEA 2) |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:47 18:52 | | 07:43 16:50 | 16:02 (WEA 2) 16:19 (WEA 2) |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | | 07:44 16:49 | 16:04 (WEA 2) 16:17 (WEA 2) |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | | 07:46 16:47 | 16:07 (WEA 2) 16:15 (WEA 2) |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | | 07:52 16:43 | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | | 08:02 16:35 | 08:39 16:22 |
| 22 | 05:38 21:39 | 06:27 20:44 | 07:17 19:33 | 08:08 18:26 | | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 8 | 17:07 (WEA 2) 17:15 (WEA 2) | 08:07 16:31 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 18:20 | 14 | 16:04 (WEA 2) 16:18 (WEA 2) | 08:08 16:30 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 18:18 | 18 | 16:02 (WEA 2) 16:20 (WEA 2) | 08:10 16:29 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 18:16 | 20 | 16:01 (WEA 2) 16:21 (WEA 2) | 08:12 16:29 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 18:14 | 22 | 16:00 (WEA 2) 16:22 (WEA 2) | 08:13 16:28 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 18:12 | 24 | 15:58 (WEA 2) 16:22 (WEA 2) | 08:15 16:27 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 18:10 | 25 | 15:57 (WEA 2) 16:22 (WEA 2) | 08:16 16:26 |
| 31 | 05:51 21:26 | 06:41 20:25 | 07:32 19:13 | 08:25 18:08 | 25 | 15:57 (WEA 2) 16:22 (WEA 2) | 08:16 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 156 | | 252 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 23-SO - IP 23-SO
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:26 (WEA 2) 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:25 (WEA 2) 16:48 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:25 (WEA 2) 16:48 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:17 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:26 (WEA 2) 16:49 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:25 (WEA 2) 16:49 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:25 (WEA 2) 16:49 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:25 (WEA 2) 16:49 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:26 (WEA 2) 16:48 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:26 (WEA 2) 16:48 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:28 (WEA 2) 16:48 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:29 (WEA 2) 16:47 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:30 (WEA 2) 16:46 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:32 (WEA 2) 16:44 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 17 | 08:33 16:53 | 07:46 17:49 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 22 | 08:28 17:01 | 07:36 17:58 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 23 | 08:27 17:03 | 07:34 18:00 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 24 | 08:26 17:05 | 07:32 18:02 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 25 | 08:25 17:06 | 07:29 18:04 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 26 | 08:23 17:08 | 07:27 18:05 | 16:35 (WEA 2) 16:41 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 27 | 08:22 17:10 | 16:32 (WEA 2) 16:39 (WEA 2) | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 16:29 (WEA 2) 16:40 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | 16:28 (WEA 2) 16:43 (WEA 2) | 18:09 | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:27 (WEA 2) 16:44 (WEA 2) | 18:09 | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:27 (WEA 2) 16:47 (WEA 2) | 18:09 | 07:12 20:04 | 06:07 21:42 | 05:20 21:42 | 05:15 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 70 | 278 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 23-SO - IP 23-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|-------|--------|-----------|---------|----|---------------------|------------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 15:56 (WEA 2) 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 21 16:17 (WEA 2) 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 15:56 (WEA 2) 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 22 16:18 (WEA 2) 16:25 |
| 3 | 05:17 | 05:56 | 06:46 | 07:36 | | 07:30 | 15:55 (WEA 2) 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 23 16:18 (WEA 2) 16:24 |
| 4 | 05:18 | 05:57 | 06:48 | 07:37 | | 07:32 | 15:55 (WEA 2) 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:00 | 23 16:18 (WEA 2) 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 15:55 (WEA 2) 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 24 16:19 (WEA 2) 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 15:55 (WEA 2) 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 24 16:19 (WEA 2) 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 15:55 (WEA 2) 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 24 16:19 (WEA 2) 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 15:56 (WEA 2) 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 23 16:19 (WEA 2) 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 15:56 (WEA 2) 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 22 16:18 (WEA 2) 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:47 | | 07:43 | 15:57 (WEA 2) 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 21 16:18 (WEA 2) 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 15:58 (WEA 2) 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 19 16:17 (WEA 2) 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 15:59 (WEA 2) 08:31 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 17 16:16 (WEA 2) 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 16:00 (WEA 2) 08:32 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | 15 16:15 (WEA 2) 16:21 |
| 14 | 05:28 | 06:13 | 07:04 | 07:54 | | 07:50 | 16:02 (WEA 2) 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | 11 16:13 (WEA 2) 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 16:05 (WEA 2) 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | 7 16:12 (WEA 2) 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 16:06 (WEA 2) 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 16:07 (WEA 2) 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 16:08 (WEA 2) 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 16:09 (WEA 2) 08:37 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 16:22 |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | | 08:00 | 16:10 (WEA 2) 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | | 08:02 | 16:11 (WEA 2) 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | | 16:35 | 16:22 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | | 08:04 | 16:12 (WEA 2) 08:39 |
| | 21:39 | 20:44 | 19:33 | 18:26 | | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | | 08:05 | 16:13 (WEA 2) 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | | 08:07 | 16:14 (WEA 2) 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | | 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 08:14 | | 08:08 | 16:15 (WEA 2) 08:41 |
| | 21:35 | 20:38 | 19:26 | 18:20 | | 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 08:16 | | 08:10 | 16:16 (WEA 2) 08:41 |
| | 21:34 | 20:36 | 19:24 | 18:18 | | 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 08:17 | | 08:12 | 16:17 (WEA 2) 08:41 |
| | 21:33 | 20:33 | 19:22 | 18:16 | | 16:29 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 08:19 | | 08:13 | 16:18 (WEA 2) 08:41 |
| | 21:31 | 20:31 | 19:19 | 18:14 | 7 | 16:11 (WEA 2) 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 08:21 | | 16:00 (WEA 2) 08:15 | 16:28 |
| | 21:29 | 20:29 | 19:17 | 18:12 | 13 | 16:13 (WEA 2) 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 08:23 | | 15:58 (WEA 2) 08:16 | 16:29 |
| | 21:28 | 20:27 | 19:15 | 18:10 | 17 | 16:15 (WEA 2) 16:26 | 16:29 |
| 31 | 05:51 | 06:41 | | 08:25 | | 15:57 (WEA 2) | 16:30 |
| | 21:26 | 20:25 | | 18:08 | 19 | 16:16 (WEA 2) | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 56 | | 296 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 23-SW - IP 23-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:25 (WEA 2) 16:47 (WEA 2) | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:24 (WEA 2) 16:47 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:24 (WEA 2) 16:47 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:17 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:25 (WEA 2) 16:48 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:24 (WEA 2) 16:48 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:24 (WEA 2) 16:48 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:25 (WEA 2) 16:48 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:25 (WEA 2) 16:48 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:25 (WEA 2) 16:47 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:27 (WEA 2) 16:47 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:28 (WEA 2) 16:46 (WEA 2) | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:29 (WEA 2) 16:45 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:31 (WEA 2) 16:43 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:35 (WEA 2) 16:39 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 16:39 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:29 18:04 | | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 16:33 (WEA 2) 16:35 (WEA 2) | 07:27 18:05 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 16:30 (WEA 2) 16:39 (WEA 2) | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 16:28 (WEA 2) 16:40 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | 16:27 (WEA 2) 16:43 (WEA 2) | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:26 (WEA 2) 16:44 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:26 (WEA 2) 16:46 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | | | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | 77 | 277 | 277 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 23-SW - IP 23-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|-------|--------|-----------|---------|----|---------------------|------------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 15:56 (WEA 2) 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 20 16:16 (WEA 2) 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 15:55 (WEA 2) 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 22 16:17 (WEA 2) 16:25 |
| 3 | 05:17 | 05:56 | 06:46 | 07:36 | | 07:30 | 15:55 (WEA 2) 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 22 16:17 (WEA 2) 16:24 |
| 4 | 05:18 | 05:57 | 06:48 | 07:37 | | 07:32 | 15:54 (WEA 2) 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:00 | 24 16:18 (WEA 2) 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 15:54 (WEA 2) 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 24 16:18 (WEA 2) 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 15:54 (WEA 2) 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 24 16:18 (WEA 2) 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 15:54 (WEA 2) 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 24 16:18 (WEA 2) 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 15:55 (WEA 2) 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 23 16:18 (WEA 2) 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 15:55 (WEA 2) 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 23 16:18 (WEA 2) 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:47 | | 07:43 | 15:56 (WEA 2) 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 21 16:17 (WEA 2) 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 15:57 (WEA 2) 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 20 16:17 (WEA 2) 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 15:58 (WEA 2) 08:31 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 18 16:16 (WEA 2) 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 15:59 (WEA 2) 08:32 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | 16 16:15 (WEA 2) 16:21 |
| 14 | 05:28 | 06:13 | 07:04 | 07:54 | | 07:50 | 16:01 (WEA 2) 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | 12 16:13 (WEA 2) 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 16:03 (WEA 2) 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | 9 16:12 (WEA 2) 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 08:37 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 16:22 |
| 20 | 05:36 | 06:23 | 07:14 | 08:05 | | 08:00 | 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | | 08:02 | 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | | 16:35 | 16:22 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | | 08:04 | 08:39 |
| | 21:39 | 20:44 | 19:33 | 18:26 | | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | | 08:05 | 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | | 08:07 | 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | | 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | | 08:08 | 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | | 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | | 08:10 | 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | | 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | | 08:12 | 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | | 16:29 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | 6 | 16:04 (WEA 2) 08:13 | 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | | 16:10 (WEA 2) 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | 12 | 16:00 (WEA 2) 08:15 | 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | | 16:12 (WEA 2) 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | 16 | 15:58 (WEA 2) 08:16 | 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | | 16:14 (WEA 2) 16:26 | 16:29 |
| 31 | 05:51 | 06:41 | | 07:25 | 19 | 15:56 (WEA 2) | 08:42 |
| | 21:26 | 20:25 | | 17:08 | | 16:15 (WEA 2) | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 53 | | 302 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 24-S - IP 24-S
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:25 (WEA 2) 16:46 (WEA 2) | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:24 (WEA 2) 16:47 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:24 (WEA 2) 16:47 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:17 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:25 (WEA 2) 16:47 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:25 (WEA 2) 16:47 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:25 (WEA 2) 16:47 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:26 (WEA 2) 16:46 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:26 (WEA 2) 16:46 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:27 (WEA 2) 16:45 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:29 (WEA 2) 16:45 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:31 (WEA 2) 16:43 (WEA 2) | 06:58 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:35 (WEA 2) 16:39 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:39 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:39 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 16:39 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 16:39 (WEA 2) | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 16:39 (WEA 2) | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 16:39 (WEA 2) | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 16:39 (WEA 2) | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 16:39 (WEA 2) | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 16:39 (WEA 2) | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 16:39 (WEA 2) | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 16:39 (WEA 2) | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 16:39 (WEA 2) | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 16:32 (WEA 2) 16:35 (WEA 2) | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 16:29 (WEA 2) 16:36 (WEA 2) | 07:27 18:05 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 16:28 (WEA 2) 16:39 (WEA 2) | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 16:26 (WEA 2) 16:40 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | 16:26 (WEA 2) 16:43 (WEA 2) | 18:09 | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:25 (WEA 2) 16:44 (WEA 2) | 18:09 | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:25 (WEA 2) 16:46 (WEA 2) | 18:09 | 07:12 20:04 | 06:07 21:42 | 05:20 21:42 | 05:15 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 92 | 223 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 24-S - IP 24-S
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|-------|--------|-----------|---------|---------------|---------------|---------------------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 15:58 (WEA 2) 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 16:14 (WEA 2) 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 15:57 (WEA 2) 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 16:15 (WEA 2) 16:25 |
| 3 | 05:17 | 05:56 | 06:46 | 07:36 | | 07:30 | 15:56 (WEA 2) 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 16:16 (WEA 2) 16:24 |
| 4 | 05:18 | 05:57 | 06:48 | 07:37 | | 07:32 | 15:55 (WEA 2) 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:00 | 16:16 (WEA 2) 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 15:55 (WEA 2) 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 16:17 (WEA 2) 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 15:55 (WEA 2) 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 16:17 (WEA 2) 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 15:55 (WEA 2) 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 16:17 (WEA 2) 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 15:55 (WEA 2) 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 16:17 (WEA 2) 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 15:55 (WEA 2) 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 16:17 (WEA 2) 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:47 | | 07:43 | 15:56 (WEA 2) 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 16:17 (WEA 2) 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 15:56 (WEA 2) 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 16:17 (WEA 2) 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 15:57 (WEA 2) 08:31 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 16:16 (WEA 2) 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | 15:58 (WEA 2) 08:32 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | 16:15 (WEA 2) 16:21 |
| 14 | 05:28 | 06:13 | 07:04 | 07:54 | | 07:50 | 15:59 (WEA 2) 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | 16:13 (WEA 2) 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | 16:01 (WEA 2) 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | 16:12 (WEA 2) 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | 16:03 (WEA 2) 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | 16:10 (WEA 2) 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | 16:05 (WEA 2) 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | 16:08 (WEA 2) 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | 16:07 (WEA 2) 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | 16:08 (WEA 2) 08:37 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | 16:22 |
| 20 | 05:35 | 06:23 | 07:14 | 08:05 | | 08:00 | 16:09 (WEA 2) 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | | 08:02 | 16:10 (WEA 2) 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | | 16:35 | 16:22 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | | 08:04 | 16:11 (WEA 2) 08:39 |
| | 21:39 | 20:44 | 19:33 | 18:26 | | 16:34 | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | | 08:05 | 16:12 (WEA 2) 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | | 16:33 | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | | 08:07 | 16:13 (WEA 2) 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | | 16:31 | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 08:14 | | 08:08 | 16:14 (WEA 2) 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | | 16:30 | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 08:16 | | 08:10 | 16:15 (WEA 2) 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | | 16:29 | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 08:17 | | 08:12 | 16:16 (WEA 2) 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | | 16:28 | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 08:19 | | 08:13 | 16:17 (WEA 2) 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | | 16:28 | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 08:21 | | 08:15 | 16:18 (WEA 2) 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | | 16:27 | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 08:23 | 16:02 (WEA 2) | 08:16 | 16:19 (WEA 2) 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | 7 | 16:09 (WEA 2) | 16:26 |
| 31 | 05:51 | 06:41 | | 07:25 | | 16:00 (WEA 2) | 16:27 |
| | 21:26 | 20:25 | | 17:08 | 12 | 16:12 (WEA 2) | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 19 | | 298 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 24-W - IP 24-W
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|----------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:23 (WEA 2) | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:23 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:23 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:17 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:24 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:24 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:24 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:25 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:26 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:27 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:29 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:32 (WEA 2) | 06:58 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:40 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 16:28 (WEA 2) 16:35 (WEA 2) | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 16:26 (WEA 2) 16:36 (WEA 2) | 07:27 18:05 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 16:25 (WEA 2) 16:39 (WEA 2) | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 16:24 (WEA 2) 16:40 (WEA 2) | 07:23 18:09 | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | 16:24 (WEA 2) 16:43 (WEA 2) | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:23 (WEA 2) 16:44 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:24 (WEA 2) 16:45 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | |
| astr.max.mögl.Beschattung | 108 | 206 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 24-W - IP 24-W
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|---|--------------------------------|--------------------------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | | 07:26 17:06 | 15:57 (WEA 2) 16:11 (WEA 2) |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | | 07:28 17:04 | 15:56 (WEA 2) 16:13 (WEA 2) |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | | 07:30 17:02 | 15:55 (WEA 2) 16:14 (WEA 2) |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | | 07:32 17:00 | 15:54 (WEA 2) 16:15 (WEA 2) |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | | 07:34 16:59 | 15:54 (WEA 2) 16:15 (WEA 2) |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | | 07:35 16:57 | 15:54 (WEA 2) 16:16 (WEA 2) |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | | 07:37 16:55 | 15:54 (WEA 2) 16:16 (WEA 2) |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | | 07:39 16:54 | 15:54 (WEA 2) 16:16 (WEA 2) |
| 9 | 05:23 21:53 | 06:05 21:11 | 06:56 20:04 | 07:46 18:54 | | 07:41 16:52 | 15:54 (WEA 2) 16:16 (WEA 2) |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:47 18:52 | | 07:43 16:50 | 15:54 (WEA 2) 16:16 (WEA 2) |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | | 07:44 16:49 | 15:55 (WEA 2) 16:16 (WEA 2) |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | | 07:46 16:47 | 15:55 (WEA 2) 16:16 (WEA 2) |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | | 07:48 16:46 | 15:56 (WEA 2) 16:15 (WEA 2) |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | | 07:50 16:44 | 15:57 (WEA 2) 16:13 (WEA 2) |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | | 07:52 16:43 | 15:58 (WEA 2) 16:12 (WEA 2) |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | | 07:53 16:41 | 16:00 (WEA 2) 16:10 (WEA 2) |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | | 07:55 16:40 | 16:01 (WEA 2) 16:08 (WEA 2) |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:35 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | | 08:02 16:35 | 08:39 16:22 |
| 22 | 05:38 21:39 | 06:27 20:44 | 07:17 19:33 | 08:08 18:26 | | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 08:14 17:20 | | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 08:16 17:18 | | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:33 | 06:35 20:33 | 07:26 19:22 | 08:17 17:16 | | 08:12 16:28 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 08:19 17:14 | | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 08:21 17:12 | | 08:15 16:27 | 08:42 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | 08:25 17:08 | 9 | 16:00 (WEA 2) 16:09 (WEA 2) | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | | | 9 | 310 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 25-SW - IP 25-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 16:35 (WEA 2) 16:49 (WEA 2) | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 16:34 (WEA 2) 16:51 (WEA 2) | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 16:33 (WEA 2) 16:52 (WEA 2) | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:17 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 16:33 (WEA 2) 16:54 (WEA 2) | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 16:33 (WEA 2) 16:54 (WEA 2) | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 16:32 (WEA 2) 16:55 (WEA 2) | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 16:32 (WEA 2) 16:55 (WEA 2) | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 16:32 (WEA 2) 16:55 (WEA 2) | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 16:32 (WEA 2) 16:54 (WEA 2) | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 16:34 (WEA 2) 16:55 (WEA 2) | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:58 17:38 | 16:34 (WEA 2) 16:55 (WEA 2) | 06:58 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:38 16:45 | 07:56 17:40 | 16:35 (WEA 2) 16:54 (WEA 2) | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 16:36 (WEA 2) 16:53 (WEA 2) | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:54 |
| 14 | 08:36 16:48 | 07:52 17:43 | 16:38 (WEA 2) 16:51 (WEA 2) | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 16:40 (WEA 2) 16:49 (WEA 2) | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:58 |
| 25 | 08:25 17:06 | 07:29 18:04 | | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:05 | | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:58 |
| 28 | 08:21 17:12 | 07:23 18:09 | | 06:19 18:58 | 06:11 20:52 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | 16:38 (WEA 2) 16:44 (WEA 2) | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | 16:37 (WEA 2) 16:47 (WEA 2) | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | | | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | 16 | 277 | 283 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 25-SW - IP 25-SW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | | November | | Dezember |
|---------------------------|-------|--------|-----------|---------|----|---------------|------------------|----------|
| 1 | 05:16 | 05:53 | 06:43 | 07:32 | | 07:26 | 16:02 (WEA 2) | 08:18 |
| | 21:57 | 21:25 | 20:22 | 19:12 | | 17:06 | 22 16:24 (WEA 2) | 16:25 |
| 2 | 05:17 | 05:54 | 06:45 | 07:34 | | 07:28 | 16:02 (WEA 2) | 08:19 |
| | 21:56 | 21:23 | 20:20 | 19:10 | | 17:04 | 22 16:24 (WEA 2) | 16:25 |
| 3 | 05:17 | 05:56 | 06:46 | 07:36 | | 07:30 | 16:02 (WEA 2) | 08:21 |
| | 21:56 | 21:21 | 20:18 | 19:08 | | 17:02 | 22 16:24 (WEA 2) | 16:24 |
| 4 | 05:18 | 05:57 | 06:48 | 07:37 | | 07:32 | 16:02 (WEA 2) | 08:22 |
| | 21:56 | 21:20 | 20:15 | 19:06 | | 17:00 | 22 16:24 (WEA 2) | 16:23 |
| 5 | 05:19 | 05:59 | 06:49 | 07:39 | | 07:34 | 16:02 (WEA 2) | 08:23 |
| | 21:55 | 21:18 | 20:13 | 19:03 | | 16:59 | 22 16:24 (WEA 2) | 16:23 |
| 6 | 05:20 | 06:01 | 06:51 | 07:41 | | 07:35 | 16:03 (WEA 2) | 08:25 |
| | 21:55 | 21:16 | 20:11 | 19:01 | | 16:57 | 21 16:24 (WEA 2) | 16:22 |
| 7 | 05:21 | 06:02 | 06:53 | 07:42 | | 07:37 | 16:03 (WEA 2) | 08:26 |
| | 21:54 | 21:14 | 20:09 | 18:59 | | 16:55 | 21 16:24 (WEA 2) | 16:22 |
| 8 | 05:22 | 06:04 | 06:54 | 07:44 | | 07:39 | 16:04 (WEA 2) | 08:27 |
| | 21:53 | 21:12 | 20:06 | 18:56 | | 16:54 | 19 16:23 (WEA 2) | 16:22 |
| 9 | 05:23 | 06:05 | 06:56 | 07:46 | | 07:41 | 16:05 (WEA 2) | 08:28 |
| | 21:53 | 21:11 | 20:04 | 18:54 | | 16:52 | 16 16:21 (WEA 2) | 16:21 |
| 10 | 05:24 | 06:07 | 06:58 | 07:47 | | 07:43 | 16:06 (WEA 2) | 08:29 |
| | 21:52 | 21:09 | 20:02 | 18:52 | | 16:50 | 13 16:19 (WEA 2) | 16:21 |
| 11 | 05:25 | 06:09 | 06:59 | 07:49 | | 07:44 | 16:08 (WEA 2) | 08:30 |
| | 21:51 | 21:07 | 19:59 | 18:50 | | 16:49 | 10 16:18 (WEA 2) | 16:21 |
| 12 | 05:26 | 06:10 | 07:01 | 07:51 | | 07:46 | 16:10 (WEA 2) | 08:31 |
| | 21:50 | 21:05 | 19:57 | 18:47 | | 16:47 | 6 16:16 (WEA 2) | 16:21 |
| 13 | 05:27 | 06:12 | 07:03 | 07:53 | | 07:48 | | 08:32 |
| | 21:49 | 21:03 | 19:55 | 18:45 | | 16:46 | | 16:21 |
| 14 | 05:28 | 06:13 | 07:04 | 07:54 | | 07:50 | | 08:33 |
| | 21:49 | 21:01 | 19:52 | 18:43 | | 16:44 | | 16:21 |
| 15 | 05:29 | 06:15 | 07:06 | 07:56 | | 07:52 | | 08:34 |
| | 21:48 | 20:59 | 19:50 | 18:41 | | 16:43 | | 16:21 |
| 16 | 05:30 | 06:17 | 07:07 | 07:58 | | 07:53 | | 08:35 |
| | 21:47 | 20:57 | 19:48 | 18:39 | | 16:41 | | 16:21 |
| 17 | 05:32 | 06:18 | 07:09 | 08:00 | | 07:55 | | 08:36 |
| | 21:45 | 20:55 | 19:45 | 18:36 | | 16:40 | | 16:21 |
| 18 | 05:33 | 06:20 | 07:11 | 08:01 | | 07:57 | | 08:37 |
| | 21:44 | 20:53 | 19:43 | 18:34 | | 16:39 | | 16:21 |
| 19 | 05:34 | 06:22 | 07:12 | 08:03 | | 07:58 | | 08:37 |
| | 21:43 | 20:51 | 19:41 | 18:32 | | 16:37 | | 16:22 |
| 20 | 05:35 | 06:23 | 07:14 | 08:05 | | 08:00 | | 08:38 |
| | 21:42 | 20:49 | 19:38 | 18:30 | | 16:36 | | 16:22 |
| 21 | 05:37 | 06:25 | 07:16 | 08:07 | | 08:02 | | 08:39 |
| | 21:41 | 20:46 | 19:36 | 18:28 | | 16:35 | | 16:22 |
| 22 | 05:38 | 06:27 | 07:17 | 08:08 | | 08:04 | | 08:39 |
| | 21:39 | 20:44 | 19:33 | 18:26 | | 16:34 | | 16:23 |
| 23 | 05:40 | 06:28 | 07:19 | 08:10 | | 08:05 | | 08:40 |
| | 21:38 | 20:42 | 19:31 | 18:24 | | 16:33 | | 16:23 |
| 24 | 05:41 | 06:30 | 07:21 | 08:12 | | 08:07 | | 08:40 |
| | 21:37 | 20:40 | 19:29 | 18:22 | | 16:31 | | 16:24 |
| 25 | 05:42 | 06:31 | 07:22 | 07:14 | | 08:08 | | 08:41 |
| | 21:35 | 20:38 | 19:26 | 17:20 | | 16:30 | | 16:25 |
| 26 | 05:44 | 06:33 | 07:24 | 07:16 | | 08:10 | | 08:41 |
| | 21:34 | 20:36 | 19:24 | 17:18 | | 16:29 | | 16:25 |
| 27 | 05:45 | 06:35 | 07:26 | 07:17 | | 16:09 (WEA 2) | | 08:41 |
| | 21:33 | 20:33 | 19:22 | 17:16 | 10 | 16:19 (WEA 2) | | 16:26 |
| 28 | 05:47 | 06:36 | 07:27 | 07:19 | | 16:07 (WEA 2) | | 08:41 |
| | 21:31 | 20:31 | 19:19 | 17:14 | 14 | 16:21 (WEA 2) | | 16:27 |
| 29 | 05:48 | 06:38 | 07:29 | 07:21 | | 16:05 (WEA 2) | | 08:42 |
| | 21:29 | 20:29 | 19:17 | 17:12 | 17 | 16:22 (WEA 2) | | 16:28 |
| 30 | 05:50 | 06:40 | 07:31 | 07:23 | | 16:04 (WEA 2) | | 08:42 |
| | 21:28 | 20:27 | 19:15 | 17:10 | 19 | 16:23 (WEA 2) | | 16:29 |
| 31 | 05:51 | 06:41 | | 07:25 | | 16:03 (WEA 2) | | 08:42 |
| | 21:26 | 20:25 | | 17:08 | 20 | 16:23 (WEA 2) | | 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | | 243 |
| astr.max.mögl.Beschattung | | | | 80 | | 216 | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 26-SW - IP 26-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | Marz | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember |
|---------------------------|--------|---------|-------|-------|-------|-------|-------|--------|-----------|---------|------------------------|------------------------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 16:11 (WEA 2) 08:18 |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 22 16:33 (WEA 2) 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 16:12 (WEA 2) 08:19 |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 20 16:32 (WEA 2) 16:25 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 05:17 | 05:17 | 05:56 | 06:46 | 07:36 | 07:30 | 16:12 (WEA 2) 08:21 |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 20 16:32 (WEA 2) 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 16:13 (WEA 2) 08:22 |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | 17 16:30 (WEA 2) 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 16:14 (WEA 2) 08:23 |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 14 16:28 (WEA 2) 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 16:15 (WEA 2) 08:25 |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 11 16:26 (WEA 2) 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 16:17 (WEA 2) 08:26 |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 8 16:25 (WEA 2) 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 16:17 (WEA 2) 08:26 |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 8 16:25 (WEA 2) 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 16:18 (WEA 2) 08:27 |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 16:52 | 16:28 (WEA 2) 08:28 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | 07:43 | 16:19 (WEA 2) 08:29 |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 16:50 | 16:29 (WEA 2) 08:30 |
| 11 | 08:38 | 07:58 | 06:58 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | 07:44 | 16:20 (WEA 2) 08:31 |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 16:49 | 16:21 (WEA 2) 08:32 |
| 12 | 08:38 | 07:56 | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 07:46 | 16:21 (WEA 2) 08:33 |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 16:47 | 16:22 (WEA 2) 08:34 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 07:48 | 16:23 (WEA 2) 08:35 |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:54 | 21:49 | 21:03 | 19:55 | 18:45 | 16:46 | 16:24 (WEA 2) 08:36 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 07:54 | 07:50 | 16:25 (WEA 2) 08:37 |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:43 | 16:44 | 16:26 (WEA 2) 08:38 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:56 | 07:52 | 16:27 (WEA 2) 08:39 |
| | 16:49 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 16:43 | 16:28 (WEA 2) 08:40 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | 07:53 | 16:29 (WEA 2) 08:41 |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 16:41 | 16:30 (WEA 2) 08:42 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | 07:55 | 16:31 (WEA 2) 08:43 |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 16:40 | 16:32 (WEA 2) 08:44 |
| 18 | 08:33 | 07:44 | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 07:57 | 16:33 (WEA 2) 08:45 |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 16:39 | 16:34 (WEA 2) 08:46 |
| 19 | 08:32 | 07:42 | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 07:58 | 16:35 (WEA 2) 08:47 |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | 16:37 | 16:35 (WEA 2) 08:48 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 05:33 | 05:12 | 05:35 | 06:23 | 07:14 | 08:05 | 08:00 | 16:36 (WEA 2) 08:49 |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:49 | 19:38 | 18:30 | 16:36 | 16:37 (WEA 2) 08:50 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 08:02 | 16:38 (WEA 2) 08:51 |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 16:35 | 16:38 (WEA 2) 08:52 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 08:04 | 16:39 (WEA 2) 08:53 |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | 18:26 | 16:34 | 16:40 (WEA 2) 08:54 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 08:10 | 16:41 (WEA 2) 08:55 |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 8 17:27 (WEA 2) 16:33 | |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 17:16 (WEA 2) 16:33 | |
| | 17:04 | 18:02 | 18:52 | 20:45 | 21:33 | 21:58 | 21:37 | 20:40 | 19:29 | 18:22 | 13 17:29 (WEA 2) 16:31 | |
| 25 | 08:25 | 07:29 | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 07:14 | 16:15 (WEA 2) 16:31 | |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 17:20 | 16 16:31 (WEA 2) 16:30 | |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 07:16 | 16:14 (WEA 2) 16:30 | |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 17:18 | 18 16:32 (WEA 2) 16:29 | |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 07:17 | 16:13 (WEA 2) 16:29 | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 21:58 | 21:33 | 20:33 | 19:22 | 17:16 | 20 16:33 (WEA 2) 16:28 | |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 07:19 | 21 16:12 (WEA 2) 16:28 | |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 17:14 | 20 16:33 (WEA 2) 16:28 | |
| 29 | 08:19 | | 07:17 | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 07:21 | 16:11 (WEA 2) 16:28 | |
| | 17:13 | | 20:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 17:12 | 22 16:33 (WEA 2) 16:27 | |
| 30 | 08:18 | | 07:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 07:23 | 16:11 (WEA 2) 16:27 | |
| | 17:15 | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 17:10 | 22 16:33 (WEA 2) 16:26 | |
| 31 | 08:16 | | 07:12 | | 05:20 | | 05:51 | 06:41 | | 07:25 | 16:11 (WEA 2) 16:26 | |
| | 17:17 | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | 22 16:33 (WEA 2) 16:26 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | 273 | | | | | | | | 162 | 112 | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 27-SW - IP 27-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | Marz | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | |
|---------------------------|--------|---------|------------------|-------|-------|-------|-------|--------|-----------|---------|------------------|-----------------|-----------------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 16:15 (WEA 2) | 08:18 | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:35 (WEA 2) | 16:25 | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 16:15 (WEA 2) | 08:19 | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:34 (WEA 2) | 16:25 | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 05:17 | 05:17 | 05:56 | 06:46 | 07:36 | 07:30 | 16:16 (WEA 2) | 08:21 | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:32 (WEA 2) | 16:24 | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 16:18 (WEA 2) | 08:22 | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | 16:30 (WEA 2) | 16:23 | |
| 5 | 08:41 | 08:08 | 16:53 (WEA 2) | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 16:20 (WEA 2) | 08:23 |
| | 16:35 | 17:26 | 4 16:57 (WEA 2) | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 8 16:28 (WEA 2) | 16:23 |
| 6 | 08:41 | 08:06 | 16:50 (WEA 2) | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 16:24 (WEA 2) | 08:25 |
| | 16:37 | 17:28 | 9 16:59 (WEA 2) | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 2 16:26 (WEA 2) | 16:22 |
| 7 | 08:40 | 08:05 | 16:48 (WEA 2) | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 16:26 | 08:26 |
| | 16:38 | 17:30 | 13 17:01 (WEA 2) | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:27 | 08:26 |
| 8 | 08:40 | 08:03 | 16:47 (WEA 2) | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 16:28 | 08:27 |
| | 16:39 | 17:32 | 16 17:03 (WEA 2) | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 16:22 | 08:27 |
| 9 | 08:39 | 08:01 | 16:46 (WEA 2) | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 16:21 | 08:28 |
| | 16:41 | 17:34 | 19 17:05 (WEA 2) | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 16:52 | 16:21 | 08:28 |
| 10 | 08:39 | 07:59 | 16:45 (WEA 2) | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | 07:43 | 16:20 | 08:29 |
| | 16:42 | 17:36 | 21 17:06 (WEA 2) | 18:27 | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 16:50 | 16:21 | 08:29 |
| 11 | 08:38 | 07:58 | 16:45 (WEA 2) | 06:58 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | 07:44 | 16:20 | 08:30 |
| | 16:43 | 17:38 | 22 17:07 (WEA 2) | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 16:49 | 16:21 | 08:30 |
| 12 | 08:38 | 07:56 | 16:45 (WEA 2) | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 07:46 | 16:21 | 08:31 |
| | 16:45 | 17:40 | 22 17:07 (WEA 2) | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 16:47 | 16:21 | 08:31 |
| 13 | 08:37 | 07:54 | 16:45 (WEA 2) | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 07:48 | 16:21 | 08:32 |
| | 16:46 | 17:41 | 22 17:07 (WEA 2) | 18:32 | 20:26 | 21:16 | 21:54 | 21:49 | 21:03 | 19:55 | 18:45 | 16:46 | 16:21 | 08:32 |
| 14 | 08:36 | 07:52 | 16:45 (WEA 2) | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 07:54 | 07:50 | 16:21 | 08:33 |
| | 16:48 | 17:43 | 22 17:07 (WEA 2) | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:43 | 16:44 | 16:21 | 08:33 |
| 15 | 08:35 | 07:50 | 16:45 (WEA 2) | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:52 | 07:52 | 16:21 | 08:34 |
| | 16:49 | 17:45 | 22 17:07 (WEA 2) | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 16:43 | 16:21 | 08:34 |
| 16 | 08:34 | 07:48 | 16:45 (WEA 2) | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | 07:53 | 16:21 | 08:35 |
| | 16:51 | 17:47 | 21 17:06 (WEA 2) | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 16:41 | 16:21 | 08:35 |
| 17 | 08:33 | 07:46 | 16:45 (WEA 2) | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | 07:55 | 16:21 | 08:36 |
| | 16:53 | 17:49 | 20 17:05 (WEA 2) | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 16:40 | 16:21 | 08:36 |
| 18 | 08:33 | 07:44 | 16:46 (WEA 2) | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 07:57 | 16:21 | 08:37 |
| | 16:54 | 17:51 | 18 17:04 (WEA 2) | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 16:39 | 16:21 | 08:37 |
| 19 | 08:32 | 07:42 | 16:48 (WEA 2) | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 07:58 | 16:21 | 08:37 |
| | 16:56 | 17:53 | 15 17:03 (WEA 2) | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | 16:37 | 16:22 | 08:37 |
| 20 | 08:30 | 07:40 | 16:50 (WEA 2) | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 08:00 | 16:22 | 08:38 |
| | 16:58 | 17:54 | 11 17:01 (WEA 2) | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:49 | 19:38 | 18:30 | 16:36 | 16:22 | 08:38 |
| 21 | 08:29 | 07:38 | 16:54 (WEA 2) | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 17:22 (WEA 2) | 16:22 | 08:39 |
| | 16:59 | 17:56 | 3 16:57 (WEA 2) | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 8 17:30 (WEA 2) | 16:22 | 08:39 |
| 22 | 08:28 | 07:36 | 16:45 (WEA 2) | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 17:20 (WEA 2) | 16:22 | 08:39 |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | 18:26 | 12 17:32 (WEA 2) | 16:34 | 16:23 | 08:40 |
| 23 | 08:27 | 07:34 | 16:45 (WEA 2) | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 17:18 (WEA 2) | 16:23 | 08:40 |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 16 17:34 (WEA 2) | 16:33 | 16:23 | 08:40 |
| 24 | 08:26 | 07:32 | 16:45 (WEA 2) | 06:28 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 17:17 (WEA 2) | 16:23 | 08:40 |
| | 17:05 | 18:02 | 18:52 | 20:45 | 21:33 | 21:58 | 21:37 | 20:40 | 19:29 | 18:22 | 18 17:35 (WEA 2) | 16:31 | 16:24 | 08:41 |
| 25 | 08:25 | 07:29 | 16:45 (WEA 2) | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 07:14 | 16:16 (WEA 2) | 16:24 | 08:41 |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 18:20 | 20 16:36 (WEA 2) | 16:30 | 16:25 | 08:41 |
| 26 | 08:23 | 07:27 | 16:45 (WEA 2) | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 07:16 | 16:15 (WEA 2) | 16:25 | 08:41 |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 18:18 | 21 16:36 (WEA 2) | 16:29 | 16:25 | 08:41 |
| 27 | 08:22 | 07:25 | 16:45 (WEA 2) | 06:21 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 07:17 | 16:15 (WEA 2) | 16:25 | 08:41 |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 21:58 | 21:33 | 20:33 | 19:22 | 18:16 | 22 16:37 (WEA 2) | 16:28 | 16:26 | 08:41 |
| 28 | 08:20 | 07:23 | 16:45 (WEA 2) | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 07:19 | 16:15 (WEA 2) | 16:28 | 08:41 |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 18:14 | 22 16:37 (WEA 2) | 16:28 | 16:27 | 08:41 |
| 29 | 08:19 | | 16:45 (WEA 2) | 07:17 | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 07:21 | 16:14 (WEA 2) | 16:28 | 08:42 |
| | 17:13 | | 20:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 18:12 | 22 16:36 (WEA 2) | 16:27 | 16:28 | 08:42 |
| 30 | 08:18 | | 16:45 (WEA 2) | 07:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 07:23 | 16:14 (WEA 2) | 16:28 | 08:42 |
| | 17:15 | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 18:10 | 22 16:36 (WEA 2) | 16:26 | 16:29 | 08:42 |
| 31 | 08:16 | | 16:45 (WEA 2) | 07:12 | | 05:20 | | 05:51 | 06:41 | | 07:25 | 16:14 (WEA 2) | 16:28 | 08:42 |
| | 17:17 | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | 22 16:36 (WEA 2) | | 16:30 | 08:42 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 205 | 266 | 243 | |
| astr.max.mögl.Beschattung | | 280 | | | | | | | | | | 77 | | |

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:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 28-SO - IP 28-SO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | |
|---------------------------|--------|---------|------------------|-------|-------|-------|-------|--------|-----------|---------|----------|------------------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 16:20 (WEA 2) | 08:18 |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:36 (WEA 2) | 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 16:22 (WEA 2) | 08:19 |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:34 (WEA 2) | 16:25 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 05:17 | 05:17 | 05:56 | 06:46 | 07:36 | 07:30 | 16:25 (WEA 2) | 08:21 |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:32 (WEA 2) | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | | 08:22 |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | | 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | | 08:23 |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | | 08:25 |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | | 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | | 08:26 |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | | 16:22 |
| 8 | 08:40 | 08:03 | 16:54 (WEA 2) | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | | 08:27 |
| | 16:39 | 17:32 | 17:03 (WEA 2) | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | | 16:22 |
| 9 | 08:39 | 08:01 | 16:52 (WEA 2) | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | | 08:28 |
| | 16:41 | 17:34 | 13 17:05 (WEA 2) | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | | 16:21 |
| 10 | 08:39 | 07:59 | 16:50 (WEA 2) | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | | 08:29 |
| | 16:42 | 17:36 | 17 17:07 (WEA 2) | 18:27 | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | | 16:21 |
| 11 | 08:38 | 07:58 | 16:50 (WEA 2) | 06:58 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | | 08:30 |
| | 16:43 | 17:38 | 19 17:09 (WEA 2) | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | | 16:21 |
| 12 | 08:38 | 07:56 | 16:50 (WEA 2) | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | | 08:31 |
| | 16:45 | 17:40 | 20 17:10 (WEA 2) | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | | 16:21 |
| 13 | 08:37 | 07:54 | 16:49 (WEA 2) | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | | 08:32 |
| | 16:46 | 17:41 | 22 17:11 (WEA 2) | 18:32 | 20:26 | 21:16 | 21:54 | 21:49 | 21:03 | 19:55 | 18:45 | | 16:21 |
| 14 | 08:36 | 07:52 | 16:49 (WEA 2) | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 07:54 | | 08:33 |
| | 16:48 | 17:43 | 22 17:11 (WEA 2) | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:43 | | 16:21 |
| 15 | 08:35 | 07:50 | 16:48 (WEA 2) | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:52 | | 08:34 |
| | 16:49 | 17:45 | 24 17:12 (WEA 2) | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | | 16:21 |
| 16 | 08:34 | 07:48 | 16:47 (WEA 2) | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | | 08:35 |
| | 16:51 | 17:47 | 24 17:11 (WEA 2) | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | | 16:21 |
| 17 | 08:33 | 07:46 | 16:47 (WEA 2) | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | | 08:36 |
| | 16:53 | 17:49 | 24 17:11 (WEA 2) | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | | 16:21 |
| 18 | 08:33 | 07:44 | 16:48 (WEA 2) | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 17:29 (WEA 2) | 07:57 |
| | 16:54 | 17:51 | 22 17:10 (WEA 2) | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 4 17:33 (WEA 2) | 16:39 |
| 19 | 08:32 | 07:42 | 16:48 (WEA 2) | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 17:24 (WEA 2) | 07:58 |
| | 16:56 | 17:53 | 22 17:10 (WEA 2) | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | 12 17:36 (WEA 2) | 16:37 |
| 20 | 08:30 | 07:40 | 16:49 (WEA 2) | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 17:22 (WEA 2) | 08:00 |
| | 16:58 | 17:54 | 20 17:09 (WEA 2) | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:49 | 19:38 | 18:30 | 16 17:38 (WEA 2) | 16:36 |
| 21 | 08:29 | 07:38 | 16:50 (WEA 2) | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 17:20 (WEA 2) | 08:02 |
| | 16:59 | 17:56 | 18 17:08 (WEA 2) | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 19 17:39 (WEA 2) | 16:35 |
| 22 | 08:28 | 07:36 | 16:52 (WEA 2) | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 17:19 (WEA 2) | 08:04 |
| | 17:01 | 17:58 | 15 17:07 (WEA 2) | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | 18:26 | 21 17:40 (WEA 2) | 16:34 |
| 23 | 08:27 | 07:34 | 16:54 (WEA 2) | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 17:19 (WEA 2) | 08:05 |
| | 17:03 | 18:00 | 10 17:04 (WEA 2) | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 21 17:40 (WEA 2) | 16:33 |
| 24 | 08:26 | 07:32 | | 06:28 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 17:18 (WEA 2) | 08:07 |
| | 17:05 | 18:02 | | 18:52 | 20:45 | 21:33 | 21:58 | 21:37 | 20:40 | 19:29 | 18:22 | 23 17:41 (WEA 2) | 16:31 |
| 25 | 08:25 | 07:29 | | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 07:14 | 16:18 (WEA 2) | 08:08 |
| | 17:06 | 18:04 | | 18:53 | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 17:20 | 23 16:41 (WEA 2) | 16:30 |
| 26 | 08:23 | 07:27 | | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 07:16 | 16:18 (WEA 2) | 08:10 |
| | 17:08 | 18:05 | | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 17:18 | 23 16:41 (WEA 2) | 16:29 |
| 27 | 08:22 | 07:25 | | 06:21 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 07:17 | 16:18 (WEA 2) | 08:12 |
| | 17:10 | 18:07 | | 18:57 | 20:50 | 21:37 | 21:58 | 21:33 | 20:33 | 19:22 | 17:16 | 23 16:41 (WEA 2) | 16:29 |
| 28 | 08:20 | 07:23 | | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 07:19 | 16:18 (WEA 2) | 08:13 |
| | 17:12 | 18:09 | | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 17:14 | 23 16:41 (WEA 2) | 16:28 |
| 29 | 08:19 | | | 07:17 | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 07:21 | 16:18 (WEA 2) | 08:15 |
| | 17:13 | | | 20:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 17:12 | 21 16:39 (WEA 2) | 16:27 |
| 30 | 08:18 | | | 07:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 07:23 | 16:18 (WEA 2) | 08:16 |
| | 17:15 | | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 17:10 | 21 16:39 (WEA 2) | 16:26 |
| 31 | 08:16 | | | 07:12 | | 05:20 | | 05:51 | 06:41 | | 07:25 | 16:19 (WEA 2) | 08:42 |
| | 17:17 | | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | 19 16:38 (WEA 2) | 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 266 | 35 | 243 |
| astr.max.mögl.Beschattung | | 301 | | | | | | | | 269 | | | |

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:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 28-SW - IP 28-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | | |
|---------------------------|--------|---------|---------------|---------------|-------|-------|-------|--------|-----------|---------|----------|---------------|---------------|---------------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 16:19 (WEA 2) | 08:18 | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:36 (WEA 2) | 16:25 | | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 16:20 (WEA 2) | 08:19 | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:34 (WEA 2) | 16:25 | | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | 07:36 | 07:30 | 16:22 (WEA 2) | 08:21 | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:32 (WEA 2) | 16:24 | | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 16:27 (WEA 2) | 08:22 | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | 16:29 (WEA 2) | 16:23 | | |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | | 08:23 | | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | | 16:23 | | |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | | 08:25 | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | | 16:22 | | |
| 7 | 08:40 | 08:05 | 16:56 (WEA 2) | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | | 08:26 | | |
| | 16:38 | 17:30 | 4 | 17:00 (WEA 2) | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:22 | | |
| 8 | 08:40 | 08:03 | 16:52 (WEA 2) | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | | 08:27 | | |
| | 16:39 | 17:32 | 11 | 17:03 (WEA 2) | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:22 | | |
| 9 | 08:39 | 08:01 | 16:50 (WEA 2) | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | | 08:28 | | |
| | 16:41 | 17:34 | 15 | 17:05 (WEA 2) | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 16:21 | | |
| 10 | 08:39 | 07:59 | 16:49 (WEA 2) | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | | 08:29 | | |
| | 16:42 | 17:36 | 18 | 17:07 (WEA 2) | 18:27 | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 16:21 | | |
| 11 | 08:38 | 07:58 | 16:49 (WEA 2) | 06:58 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | | 08:30 | | |
| | 16:43 | 17:38 | 20 | 17:09 (WEA 2) | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 16:21 | | |
| 12 | 08:38 | 07:56 | 16:48 (WEA 2) | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | | 08:31 | | |
| | 16:45 | 17:40 | 22 | 17:10 (WEA 2) | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 16:21 | | |
| 13 | 08:37 | 07:54 | 16:48 (WEA 2) | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | | 08:32 | | |
| | 16:46 | 17:41 | 22 | 17:10 (WEA 2) | 18:32 | 20:26 | 21:16 | 21:54 | 21:49 | 21:03 | 19:55 | 18:45 | 16:21 | | |
| 14 | 08:36 | 07:52 | 16:47 (WEA 2) | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 07:54 | | 08:33 | | |
| | 16:48 | 17:43 | 24 | 17:11 (WEA 2) | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:44 | 16:21 | | |
| 15 | 08:35 | 07:50 | 16:47 (WEA 2) | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:52 | | 08:34 | | |
| | 16:49 | 17:45 | 24 | 17:11 (WEA 2) | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 16:21 | | |
| 16 | 08:34 | 07:48 | 16:46 (WEA 2) | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | | 08:35 | | |
| | 16:51 | 17:47 | 24 | 17:10 (WEA 2) | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 16:21 | | |
| 17 | 08:33 | 07:46 | 16:47 (WEA 2) | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | | 08:36 | | |
| | 16:53 | 17:49 | 23 | 17:10 (WEA 2) | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 16:21 | | |
| 18 | 08:33 | 07:44 | 16:47 (WEA 2) | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | | 08:37 | | |
| | 16:54 | 17:51 | 22 | 17:09 (WEA 2) | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 16:21 | | |
| 19 | 08:32 | 07:42 | 16:48 (WEA 2) | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 17:24 (WEA 2) | 08:37 | | |
| | 16:56 | 17:53 | 21 | 17:09 (WEA 2) | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | 10 | 17:34 (WEA 2) | 16:37 |
| 20 | 08:30 | 07:40 | 16:49 (WEA 2) | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 17:21 (WEA 2) | | 08:00 | 16:22 |
| | 16:58 | 17:54 | 19 | 17:08 (WEA 2) | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:49 | 19:38 | 18:30 | 15 | 17:36 (WEA 2) | 16:36 |
| 21 | 08:29 | 07:38 | 16:50 (WEA 2) | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 17:20 (WEA 2) | | 08:02 | 16:22 |
| | 16:59 | 17:56 | 17 | 17:07 (WEA 2) | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 18 | 17:38 (WEA 2) | 16:35 |
| 22 | 08:28 | 07:36 | 16:52 (WEA 2) | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 17:19 (WEA 2) | | 08:04 | 16:22 |
| | 17:01 | 17:58 | 13 | 17:05 (WEA 2) | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | 18:26 | 20 | 17:39 (WEA 2) | 16:34 |
| 23 | 08:27 | 07:34 | 16:54 (WEA 2) | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 17:18 (WEA 2) | | 08:05 | 16:23 |
| | 17:03 | 18:00 | 9 | 17:03 (WEA 2) | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 21 | 17:39 (WEA 2) | 16:33 |
| 24 | 08:26 | 07:32 | | 06:28 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 17:17 (WEA 2) | | 08:07 | 16:23 |
| | 17:05 | 18:02 | | 18:52 | 20:45 | 21:33 | 21:58 | 21:37 | 20:40 | 19:29 | 18:22 | 23 | 17:40 (WEA 2) | 16:31 | 16:24 |
| 25 | 08:25 | 07:29 | | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 07:14 | 16:17 (WEA 2) | | 08:08 | 08:41 |
| | 17:06 | 18:04 | | 18:53 | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 17:20 | 23 | 16:40 (WEA 2) | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 07:16 | 16:17 (WEA 2) | | 08:10 | 08:41 |
| | 17:08 | 18:05 | | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 17:18 | 23 | 16:40 (WEA 2) | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | | 06:21 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 07:17 | 16:17 (WEA 2) | | 08:12 | 08:41 |
| | 17:10 | 18:07 | | 18:57 | 20:50 | 21:37 | 21:58 | 21:33 | 20:33 | 19:22 | 17:16 | 23 | 16:40 (WEA 2) | 16:29 | 16:26 |
| 28 | 08:20 | 07:23 | | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 07:19 | | | 08:13 | 08:41 |
| | 17:12 | 18:09 | | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 17:14 | 23 | 16:40 (WEA 2) | 16:28 | 16:27 |
| 29 | 08:19 | | | 07:17 | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 07:21 | | | 08:15 | 08:42 |
| | 17:13 | | | 20:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 17:12 | 23 | 16:39 (WEA 2) | 16:27 | 16:28 |
| 30 | 08:18 | | | 07:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 07:23 | | | 08:16 | 08:42 |
| | 17:15 | | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 17:10 | 21 | 16:38 (WEA 2) | 16:26 | 16:29 |
| 31 | 08:16 | | | 07:12 | | 05:20 | | 05:51 | 06:41 | | 07:25 | | | 16:18 (WEA 2) | 08:42 |
| | 17:17 | | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | 19 | 16:37 (WEA 2) | | 16:30 |
| Sonnenscheinstunden | 258 | 277 | | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | | | 266 | 243 |
| astr.max.mögl.Beschattung | | 308 | | | | | | | | | 262 | 43 | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 29-NW - IP 29-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | Marz | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | |
|---------------------------|--------|---------|------------------|-----------------|-------|-------|-------|--------|-----------|---------|----------|------------------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 17:03 (WEA 2) | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | |
| | 16:31 | 17:19 | 18:11 | 8 17:11 (WEA 2) | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | |
| 2 | 08:42 | 08:13 | 07:19 | | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | |
| | 16:32 | 17:21 | 18:13 | | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | |
| 3 | 08:41 | 08:11 | 07:16 | | 07:05 | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | 07:36 | 07:30 | 08:21 | |
| | 16:33 | 17:23 | 18:15 | | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | |
| 4 | 08:41 | 08:10 | 07:14 | | 07:03 | 06:59 | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 | |
| | 16:34 | 17:25 | 18:16 | | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | 16:23 | |
| 5 | 08:41 | 08:08 | 07:12 | | 07:01 | 06:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 08:23 | |
| | 16:35 | 17:26 | 18:18 | | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | |
| 6 | 08:41 | 08:06 | 07:10 | | 06:58 | 06:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:25 | |
| | 16:37 | 17:28 | 18:20 | | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:22 | |
| 7 | 08:40 | 08:05 | 07:08 | | 06:56 | 06:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 08:26 | |
| | 16:38 | 17:30 | 18:22 | | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:22 | |
| 8 | 08:40 | 08:03 | 07:05 | | 06:54 | 06:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | |
| | 16:39 | 17:32 | 18:24 | | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 16:22 | |
| 9 | 08:39 | 08:01 | 07:03 | | 06:52 | 06:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | |
| | 16:41 | 17:34 | 18:25 | | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 16:52 | 16:21 | |
| 10 | 08:39 | 07:59 | 07:01 | | 06:49 | 06:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | 07:43 | 08:29 | |
| | 16:42 | 17:36 | 18:27 | | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 16:50 | 16:21 | |
| 11 | 08:38 | 07:58 | 06:58 | | 06:47 | 06:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | 07:44 | 08:30 | |
| | 16:43 | 17:38 | 18:29 | | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 16:49 | 16:21 | |
| 12 | 08:38 | 07:56 | 06:56 | | 06:45 | 06:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 07:46 | 08:31 | |
| | 16:45 | 17:40 | 18:31 | | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 16:47 | 16:21 | |
| 13 | 08:37 | 07:54 | 17:06 (WEA 2) | 06:54 | 06:43 | 06:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 17:35 (WEA 2) | 07:48 | 08:32 |
| | 16:46 | 17:41 | 6 17:12 (WEA 2) | 18:32 | 20:26 | 21:16 | 21:54 | 21:49 | 21:03 | 19:55 | 18:45 | 11 17:46 (WEA 2) | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 17:03 (WEA 2) | 06:52 | 06:40 | 06:42 | 05:12 | 05:28 | 06:13 | 07:04 | 07:54 | 17:32 (WEA 2) | 07:50 | 08:33 |
| | 16:48 | 17:43 | 12 17:15 (WEA 2) | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:43 | 16 17:48 (WEA 2) | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 17:01 (WEA 2) | 06:49 | 06:38 | 06:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:56 | 17:31 (WEA 2) | 07:52 | 08:34 |
| | 16:49 | 17:45 | 16 17:17 (WEA 2) | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 18 17:49 (WEA 2) | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 16:58 (WEA 2) | 06:47 | 06:36 | 06:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | 17:29 (WEA 2) | 07:53 | 08:35 |
| | 16:51 | 17:47 | 20 17:18 (WEA 2) | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 21 17:50 (WEA 2) | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 16:58 (WEA 2) | 06:45 | 06:34 | 06:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | 17:29 (WEA 2) | 07:55 | 08:36 |
| | 16:53 | 17:49 | 21 17:19 (WEA 2) | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 22 17:51 (WEA 2) | 16:40 | 16:21 |
| 18 | 08:33 | 07:44 | 16:57 (WEA 2) | 06:42 | 06:32 | 06:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 17:28 (WEA 2) | 07:57 | 08:37 |
| | 16:54 | 17:51 | 23 17:20 (WEA 2) | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 24 17:52 (WEA 2) | 16:39 | 16:21 |
| 19 | 08:32 | 07:42 | 16:56 (WEA 2) | 06:40 | 06:29 | 06:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 17:27 (WEA 2) | 07:58 | 08:37 |
| | 16:56 | 17:53 | 24 17:20 (WEA 2) | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | 24 17:51 (WEA 2) | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 16:56 (WEA 2) | 06:38 | 06:27 | 06:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 17:26 (WEA 2) | 08:00 | 08:38 |
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| 21 | 08:29 | 07:38 | 16:56 (WEA 2) | 06:35 | 06:25 | 06:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 17:26 (WEA 2) | 08:02 | 08:39 |
| | 16:59 | 17:56 | 25 17:21 (WEA 2) | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 25 17:51 (WEA 2) | 16:35 | 16:22 |
| 22 | 08:28 | 07:36 | 16:56 (WEA 2) | 06:33 | 06:23 | 06:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 17:27 (WEA 2) | 08:04 | 08:39 |
| | 17:01 | 17:58 | 25 17:21 (WEA 2) | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | 18:26 | 24 17:51 (WEA 2) | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 16:56 (WEA 2) | 06:31 | 06:21 | 06:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 17:27 (WEA 2) | 08:05 | 08:40 |
| | 17:03 | 18:00 | 25 17:21 (WEA 2) | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 23 17:50 (WEA 2) | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 16:56 (WEA 2) | 06:28 | 06:19 | 06:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 17:27 (WEA 2) | 08:07 | 08:40 |
| | 17:05 | 18:02 | 23 17:19 (WEA 2) | 18:52 | 20:45 | 21:33 | 21:58 | 21:37 | 20:40 | 19:29 | 18:22 | 23 17:50 (WEA 2) | 16:31 | 16:24 |
| 25 | 08:25 | 07:29 | 16:57 (WEA 2) | 06:26 | 06:17 | 06:26 | 05:13 | 05:42 | 06:31 | 07:22 | 08:14 | 16:28 (WEA 2) | 08:08 | 08:41 |
| | 17:06 | 18:04 | 22 17:19 (WEA 2) | 18:53 | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 18:20 | 21 16:49 (WEA 2) | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 16:58 (WEA 2) | 06:24 | 06:15 | 06:25 | 05:13 | 05:44 | 06:33 | 07:24 | 08:16 | 16:29 (WEA 2) | 08:10 | 08:41 |
| | 17:08 | 18:05 | 20 17:18 (WEA 2) | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 18:18 | 19 16:48 (WEA 2) | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 16:59 (WEA 2) | 06:21 | 06:13 | 06:24 | 05:14 | 05:45 | 06:35 | 07:26 | 08:17 | 16:31 (WEA 2) | 08:12 | 08:41 |
| | 17:10 | 18:07 | 18 17:17 (WEA 2) | 18:57 | 20:50 | 21:37 | 21:57 | 21:33 | 20:33 | 19:22 | 18:16 | 16 16:47 (WEA 2) | 16:29 | 16:26 |
| 28 | 08:20 | 07:23 | 17:01 (WEA 2) | 06:19 | 06:11 | 06:23 | 05:14 | 05:47 | 06:36 | 07:27 | 08:19 | 16:33 (WEA 2) | 08:13 | 08:41 |
| | 17:12 | 18:09 | 14 17:15 (WEA 2) | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 18:14 | 11 16:44 (WEA 2) | 16:28 | 16:27 |
| 29 | 08:19 | | | 07:17 | 06:09 | 06:22 | 05:15 | 05:48 | 06:38 | 07:29 | 08:21 | 16:36 (WEA 2) | 08:15 | 08:42 |
| | 17:13 | | | 20:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 18:12 | 3 16:39 (WEA 2) | 16:27 | 16:28 |
| 30 | 08:18 | | | 07:15 | 06:07 | 06:21 | 05:15 | 05:50 | 06:40 | 07:31 | 08:23 | | 08:16 | 08:42 |
| | 17:15 | | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 18:10 | | 16:26 | 16:29 |
| 31 | 08:16 | | | 07:12 | | 06:20 | | 06:51 | 06:41 | | 07:25 | | 08:16 | 08:42 |
| | 17:17 | | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | | 16:27 | 16:30 |
| Sonnenscheinstunden | 258 | 277 | | 367 | | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | | 318 | | 8 | | | | | | | 326 | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 29-SW - IP 29-SW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | Marz | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | | |
|---------------------------|--------|---------|---------------|---------------|-------|-------|-------|--------|-----------|---------|----------|---------------|---------------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 17:02 (WEA 2) | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | | |
| | 16:31 | 17:19 | 18:11 | 17:14 (WEA 2) | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 08:42 | 08:13 | 07:19 | | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 16:32 | 17:21 | 18:13 | | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 08:41 | 08:11 | 07:16 | | 07:05 | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | 07:36 | 07:30 | 08:21 | | |
| | 16:33 | 17:23 | 18:15 | | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | | |
| 4 | 08:41 | 08:10 | 07:14 | | 07:03 | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 | | |
| | 16:34 | 17:25 | 18:16 | | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | 16:23 | | |
| 5 | 08:41 | 08:08 | 07:12 | | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 08:23 | | |
| | 16:35 | 17:26 | 18:18 | | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | | |
| 6 | 08:41 | 08:06 | 07:10 | | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:25 | | |
| | 16:37 | 17:28 | 18:20 | | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:22 | | |
| 7 | 08:40 | 08:05 | 07:08 | | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 16:38 | 17:30 | 18:22 | | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:22 | | |
| 8 | 08:40 | 08:03 | 07:05 | | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | | |
| | 16:39 | 17:32 | 18:24 | | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 16:22 | | |
| 9 | 08:39 | 08:01 | 07:03 | | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | | |
| | 16:41 | 17:34 | 18:25 | | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 16:52 | 16:21 | | |
| 10 | 08:39 | 07:59 | 07:01 | | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | 07:43 | 08:29 | | |
| | 16:42 | 17:36 | 18:27 | | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 16:50 | 16:21 | | |
| 11 | 08:38 | 07:58 | 06:58 | | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | 07:44 | 08:30 | | |
| | 16:43 | 17:38 | 18:29 | | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 16:49 | 16:21 | | |
| 12 | 08:38 | 07:56 | 06:56 | | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 07:46 | 08:31 | | |
| | 16:45 | 17:40 | 18:31 | | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 8 | 17:46 (WEA 2) | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 14 | 17:34 (WEA 2) | 16:48 | 08:32 |
| | 16:46 | 17:41 | 18:32 | | 20:26 | 21:16 | 21:54 | 21:49 | 21:03 | 19:55 | 18:45 | 14 | 17:48 (WEA 2) | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 17:05 (WEA 2) | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 07:54 | 18 | 17:32 (WEA 2) | 16:44 | 08:33 |
| | 16:48 | 17:43 | 17:15 (WEA 2) | 18:34 | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:43 | 18 | 17:50 (WEA 2) | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 17:03 (WEA 2) | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:56 | 20 | 17:31 (WEA 2) | 16:43 | 08:34 |
| | 16:49 | 17:45 | 17:17 (WEA 2) | 18:36 | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | 20 | 17:51 (WEA 2) | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 17:00 (WEA 2) | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | 17:30 (WEA 2) | 16:43 | 08:35 | |
| | 16:51 | 17:47 | 17:18 (WEA 2) | 18:38 | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | 22 | 17:52 (WEA 2) | 16:41 | 16:21 |
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| | 16:53 | 17:49 | 17:19 (WEA 2) | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 23 | 17:52 (WEA 2) | 16:40 | 16:21 |
| 18 | 08:33 | 07:44 | 16:58 (WEA 2) | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 23 | 17:29 (WEA 2) | 16:40 | 08:37 |
| | 16:54 | 17:51 | 17:20 (WEA 2) | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 24 | 17:53 (WEA 2) | 16:39 | 16:21 |
| 19 | 08:32 | 07:42 | 16:58 (WEA 2) | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 24 | 17:27 (WEA 2) | 16:38 | 08:37 |
| | 16:56 | 17:53 | 17:21 (WEA 2) | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | 25 | 17:52 (WEA 2) | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 16:57 (WEA 2) | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 25 | 17:27 (WEA 2) | 16:37 | 08:38 |
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| 25 | 08:25 | 07:29 | 16:57 (WEA 2) | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 08:14 | 21 | 16:30 (WEA 2) | 16:30 | 08:41 |
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| | 17:08 | 18:05 | 17:19 (WEA 2) | 18:55 | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 18:18 | 17 | 16:48 (WEA 2) | 16:29 | 16:25 |
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| | 17:12 | 18:09 | 17:17 (WEA 2) | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 18:14 | 9 | 16:44 (WEA 2) | 16:28 | 16:27 |
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| 30 | 08:18 | | | 07:15 | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 08:23 | | | 16:26 | 08:42 |
| | 17:15 | | | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 18:10 | | | 16:26 | 16:29 |
| 31 | 08:16 | | | 07:12 | | 05:20 | | 05:51 | 06:41 | | 07:25 | | | 16:26 | 08:42 |
| | 17:17 | | | 20:04 | | 21:42 | | 21:26 | 20:25 | | 17:08 | | | 16:26 | 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | | 416 | 486 | 500 | 503 | 454 | 381 | 331 | | 266 | 243 | |
| astr.max.mögl.Beschattung | | 308 | | 12 | | | | | | | 332 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 30-NW - IP 30-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni |
|---------------------------|----------------|----------------|--------------------------------|------------------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 17:28 (WEA 2) 20:05 | 07:10 20:57 | 06:05 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 17:26 (WEA 2) 18:13 | 07:08 20:07 | 06:03 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 17:25 (WEA 2) 18:15 | 07:05 20:09 | 06:01 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 17:24 (WEA 2) 18:16 | 07:03 20:10 | 05:59 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 17:22 (WEA 2) 18:18 | 07:01 20:12 | 05:57 21:03 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 17:22 (WEA 2) 18:20 | 06:58 20:14 | 05:55 21:05 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 17:22 (WEA 2) 18:22 | 06:56 20:16 | 05:54 21:07 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 17:21 (WEA 2) 18:24 | 06:54 20:17 | 05:52 21:08 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 17:21 (WEA 2) 18:25 | 06:52 20:19 | 05:50 21:10 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 17:21 (WEA 2) 18:27 | 06:49 20:21 | 05:48 21:11 |
| 11 | 08:38 16:43 | 07:58 17:38 | 06:58 18:29 | 17:22 (WEA 2) 18:29 | 06:47 20:22 | 05:47 21:13 |
| 12 | 08:38 16:45 | 07:56 17:40 | 06:56 18:31 | 17:21 (WEA 2) 18:31 | 06:45 20:24 | 05:45 21:15 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 17:22 (WEA 2) 18:32 | 06:43 20:26 | 05:43 21:16 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 17:24 (WEA 2) 18:34 | 06:40 20:28 | 05:42 21:18 |
| 15 | 08:35 16:49 | 07:50 17:45 | 06:49 18:36 | 17:25 (WEA 2) 18:36 | 06:38 20:29 | 05:40 21:19 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 17:28 (WEA 2) 18:38 | 06:36 20:31 | 05:39 21:21 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 17:37 (WEA 2) 18:39 | 06:34 20:33 | 05:37 21:22 |
| 18 | 08:33 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:32 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:57 |
| 25 | 08:25 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:05 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:57 |
| 28 | 08:20 17:12 | 07:23 18:09 | 17:33 (WEA 2) 17:40 (WEA 2) | 06:11 20:51 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | | 06:19 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | | 7 | 343 | | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 30-NW - IP 30-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|----------------|----------------|-----------------------------------|--------------------------------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 18:00 (WEA 2) 18:23 (WEA 2) | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 23 18:00 (WEA 2) 24 18:24 (WEA 2) | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 25 17:59 (WEA 2) 25 18:24 (WEA 2) | 07:30 17:02 | 08:21 16:24 |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | 26 17:59 (WEA 2) 26 18:25 (WEA 2) | 07:32 17:00 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | 27 17:57 (WEA 2) 27 18:24 (WEA 2) | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 27 17:57 (WEA 2) 27 18:24 (WEA 2) | 07:35 16:57 | 08:25 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 26 17:58 (WEA 2) 26 18:24 (WEA 2) | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 25 17:58 (WEA 2) 25 18:23 (WEA 2) | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 06:56 20:04 | 07:46 18:54 | 23 17:58 (WEA 2) 23 18:21 (WEA 2) | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:47 18:52 | 22 17:58 (WEA 2) 22 18:20 (WEA 2) | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 19 18:00 (WEA 2) 19 18:19 (WEA 2) | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 17 18:01 (WEA 2) 17 18:18 (WEA 2) | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 12 18:02 (WEA 2) 12 18:14 (WEA 2) | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:49 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 16 18:00 (WEA 2) 16 18:16 (WEA 2) | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 15 18:00 (WEA 2) 15 18:16 (WEA 2) | 07:52 16:43 | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 07:07 19:48 | 07:58 18:39 | 14 18:00 (WEA 2) 14 18:16 (WEA 2) | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | 08:00 18:36 | 13 18:00 (WEA 2) 13 18:16 (WEA 2) | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | 08:01 18:34 | 12 18:01 (WEA 2) 12 18:17 (WEA 2) | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | 08:03 18:32 | 11 18:02 (WEA 2) 11 18:18 (WEA 2) | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 07:14 19:38 | 08:05 18:30 | 10 18:03 (WEA 2) 10 18:19 (WEA 2) | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | 08:07 18:28 | 9 18:04 (WEA 2) 9 18:20 (WEA 2) | 08:02 16:35 | 08:39 16:22 |
| 22 | 05:38 21:39 | 06:27 20:44 | 07:17 19:33 | 08:08 18:26 | 8 18:05 (WEA 2) 8 18:21 (WEA 2) | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 7 18:06 (WEA 2) 7 18:22 (WEA 2) | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 6 18:07 (WEA 2) 6 18:23 (WEA 2) | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | 07:14 17:20 | 5 18:08 (WEA 2) 5 18:24 (WEA 2) | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | 07:16 17:18 | 4 18:09 (WEA 2) 4 18:25 (WEA 2) | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 06:35 20:33 | 07:26 19:22 | 18:11 (WEA 2) 6 18:17 (WEA 2) | 07:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | 18:06 (WEA 2) 14 18:20 (WEA 2) | 07:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | 18:04 (WEA 2) 18 18:22 (WEA 2) | 07:21 17:12 | 08:15 16:27 | 08:42 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 18:03 (WEA 2) 20 18:23 (WEA 2) | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:25 | | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | 331 | | 266 | 243 |
| astr.max.mögl.Beschattung | | | 58 | 296 | | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 30-SW - IP 30-SW
Annahmen für Schattenwurfberechnung

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

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

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | | | |
|----|--------|---------|-------|---------------|---------------|-------|-------|--------|-----------|---------|----------|---------------|-------|---------------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 17:31 (WEA 2) | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 18:01 (WEA 2) | 07:26 | 08:18 | | |
| | 16:31 | 17:19 | 18:11 | 11 | 17:42 (WEA 2) | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 24 | 18:25 (WEA 2) | 17:06 | 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | | 17:29 (WEA 2) | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | | 18:01 (WEA 2) | 07:28 | 08:19 |
| | 16:32 | 17:21 | 18:13 | 15 | 17:44 (WEA 2) | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 25 | 18:26 (WEA 2) | 17:04 | 16:25 |
| 3 | 08:41 | 08:11 | 07:16 | | 17:27 (WEA 2) | 07:05 | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | 07:36 | | 18:00 (WEA 2) | 07:30 | 08:21 |
| | 16:33 | 17:23 | 18:15 | 19 | 17:46 (WEA 2) | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 26 | 18:26 (WEA 2) | 17:02 | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | | 17:26 (WEA 2) | 07:03 | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | | 18:00 (WEA 2) | 07:32 | 08:22 |
| | 16:34 | 17:25 | 18:16 | 22 | 17:48 (WEA 2) | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 26 | 18:26 (WEA 2) | 17:00 | 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | | 17:24 (WEA 2) | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | | 17:59 (WEA 2) | 07:34 | 08:23 |
| | 16:35 | 17:26 | 18:18 | 24 | 17:48 (WEA 2) | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 26 | 18:25 (WEA 2) | 16:59 | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | | 17:23 (WEA 2) | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | | 17:59 (WEA 2) | 07:35 | 08:25 |
| | 16:37 | 17:28 | 18:20 | 25 | 17:48 (WEA 2) | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 26 | 18:25 (WEA 2) | 16:57 | 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | | 17:23 (WEA 2) | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | | 17:59 (WEA 2) | 07:37 | 08:26 |
| | 16:38 | 17:30 | 18:22 | 26 | 17:49 (WEA 2) | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 26 | 18:25 (WEA 2) | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | | 17:22 (WEA 2) | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | | 18:00 (WEA 2) | 07:39 | 08:27 |
| | 16:39 | 17:32 | 18:24 | 26 | 17:48 (WEA 2) | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 24 | 18:24 (WEA 2) | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | | 17:22 (WEA 2) | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | | 17:59 (WEA 2) | 07:41 | 08:28 |
| | 16:41 | 17:34 | 18:25 | 26 | 17:48 (WEA 2) | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 23 | 18:22 (WEA 2) | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | | 17:22 (WEA 2) | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | | 18:00 (WEA 2) | 07:43 | 08:29 |
| | 16:42 | 17:36 | 18:27 | 26 | 17:48 (WEA 2) | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 21 | 18:21 (WEA 2) | 16:50 | 16:21 |
| 11 | 08:38 | 07:58 | 06:58 | | 17:23 (WEA 2) | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 07:49 | | 18:02 (WEA 2) | 07:44 | 08:30 |
| | 16:43 | 17:38 | 18:29 | 25 | 17:48 (WEA 2) | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 18:50 | 18 | 18:20 (WEA 2) | 16:49 | 16:21 |
| 12 | 08:38 | 07:56 | 06:56 | | 17:22 (WEA 2) | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | | 18:04 (WEA 2) | 07:46 | 08:31 |
| | 16:45 | 17:40 | 18:31 | 24 | 17:46 (WEA 2) | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 18:47 | 14 | 18:18 (WEA 2) | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | | 17:23 (WEA 2) | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | | 18:06 (WEA 2) | 07:48 | 08:32 |
| | 16:46 | 17:41 | 18:32 | 23 | 17:46 (WEA 2) | 20:26 | 21:16 | 21:54 | 21:49 | 21:03 | 19:55 | 18:45 | 7 | 18:13 (WEA 2) | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | | 17:24 (WEA 2) | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 07:54 | | 18:02 (WEA 2) | 07:50 | 08:33 |
| | 16:48 | 17:43 | 18:34 | 21 | 17:45 (WEA 2) | 20:28 | 21:18 | 21:54 | 21:49 | 21:01 | 19:52 | 18:43 | | 18:22 (WEA 2) | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | | 17:25 (WEA 2) | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:56 | | 18:04 (WEA 2) | 07:52 | 08:34 |
| | 16:49 | 17:45 | 18:36 | 17 | 17:42 (WEA 2) | 20:29 | 21:19 | 21:55 | 21:48 | 20:59 | 19:50 | 18:41 | | 18:24 (WEA 2) | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 06:47 | | 17:27 (WEA 2) | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | | 18:03 (WEA 2) | 07:53 | 08:35 |
| | 16:51 | 17:47 | 18:38 | 13 | 17:40 (WEA 2) | 20:31 | 21:21 | 21:55 | 21:47 | 20:57 | 19:48 | 18:39 | | 18:06 (WEA 2) | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | | 17:32 (WEA 2) | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | | 18:04 (WEA 2) | 07:55 | 08:36 |
| | 16:53 | 17:49 | 18:39 | 3 | 17:35 (WEA 2) | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | | 18:06 (WEA 2) | 16:40 | 16:21 |
| 18 | 08:33 | 07:44 | 06:42 | | 17:33 (WEA 2) | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | | 18:04 (WEA 2) | 07:57 | 08:37 |
| | 16:54 | 17:51 | 18:41 | | 17:34 (WEA 2) | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | | 18:06 (WEA 2) | 16:39 | 16:21 |
| 19 | 08:32 | 07:42 | 06:40 | | 17:34 (WEA 2) | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | | 18:04 (WEA 2) | 07:58 | 08:37 |
| | 16:56 | 17:53 | 18:43 | | 17:35 (WEA 2) | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | 18:32 | | 18:06 (WEA 2) | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 06:38 | | 17:36 (WEA 2) | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | | 18:04 (WEA 2) | 08:00 | 08:38 |
| | 16:58 | 17:54 | 18:45 | | 17:37 (WEA 2) | 20:38 | 21:27 | 21:57 | 21:42 | 20:49 | 19:38 | 18:30 | | 18:06 (WEA 2) | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 06:35 | | 17:38 (WEA 2) | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | | 18:04 (WEA 2) | 08:02 | 08:39 |
| | 16:59 | 17:56 | 18:46 | | 17:39 (WEA 2) | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | | 18:06 (WEA 2) | 16:35 | 16:22 |
| 22 | 08:28 | 07:36 | 06:33 | | 17:40 (WEA 2) | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | | 18:04 (WEA 2) | 08:04 | 08:39 |
| | 17:01 | 17:58 | 18:48 | | 17:41 (WEA 2) | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | 18:26 | | 18:06 (WEA 2) | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 06:31 | | 17:42 (WEA 2) | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | | 18:04 (WEA 2) | 08:05 | 08:40 |
| | 17:03 | 18:00 | 18:50 | | 17:43 (WEA 2) | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | | 18:06 (WEA 2) | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 06:28 | | 17:44 (WEA 2) | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | | 18:04 (WEA 2) | 08:07 | 08:40 |
| | 17:05 | 18:02 | 18:52 | | 17:45 (WEA 2) | 20:45 | 21:33 | 21:57 | 21:37 | 20:40 | 19:29 | 18:22 | | 18:06 (WEA 2) | 16:31 | 16:24 |
| 25 | 08:25 | 07:29 | 06:26 | | 17:46 (WEA 2) | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 08:12 | | 18:04 (WEA 2) | 08:08 | 08:41 |
| | 17:06 | 18:04 | 18:53 | | 17:47 (WEA 2) | 20:46 | 21:34 | 21:58 | 21:35 | 20:38 | 19:26 | 18:20 | | 18:06 (WEA 2) | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 06:24 | | 17:48 (WEA 2) | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 08:16 | | 18:04 (WEA 2) | 08:10 | 08:41 |
| | 17:08 | 18:05 | 18:55 | | 17:49 (WEA 2) | 20:48 | 21:35 | 21:58 | 21:34 | 20:36 | 19:24 | 18:18 | | 18:06 (WEA 2) | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 06:21 | | 17:50 (WEA 2) | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 08:17 | | 18:04 (WEA 2) | 08:12 | 08:41 |
| | 17:10 | 18:07 | 18:57 | | 17:51 (WEA 2) | 20:50 | 21:37 | 21:57 | 21:32 | 20:33 | 19:22 | 18:16 | | 18:06 (WEA 2) | 16:29 | 16:26 |
| 28 | 08:20 | 07:23 | 06:19 | | 17:52 (WEA 2) | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 08:19 | | 18:06 (WEA 2) | 08:13 | 08:41 |
| | 17:12 | 18:09 | 18:58 | | 17:53 (WEA 2) | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 18:14 | | 18:08 (WEA 2) | 16:28 | 16:27 |
| 29 | 08:19 | 07:17 | 06:13 | | 17:54 (WEA 2) | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 08:21 | | 18:06 (WEA 2) | 08:15 | 08:42 |
| | 17:13 | 07:17 | 06:13 | | 17:55 (WEA 2) | 20:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:17 | 19:10 | 19 | 18:24 (WEA 2) | 17:12 | 16:28 |
| 30 | 08:18 | 07:15 | 06:11 | | 17:56 (WEA 2) | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 08:23 | | 18:03 (WEA 2) | 08:16 | 08:42 |
| | 17:15 | 07:15 | 06:11 | | 17:57 (WEA 2) | 20:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:17 | 19:15 | 22 | 18:25 (WEA 2) | 17:10 | 16:29 |
| 31 | 08:16 | 07:12 | 06:08 | | 17:58 (WEA 2) | 06:05 | 05:20 | 05:15 | 05:51 | 06:41 | 07:32 | 08:24 | | 18:04 (WEA 2) | 08:17 | 08:42 |
| | 17:17 | 07:12 | 06:08 | | 17:59 (WEA 2) | 20:04 | 21:00 | 21:42 | 21:26 | 20:25 | 19:15 | 18:08 | | 18:06 (WEA 2) | 16:26 | 16:29 |
| | | | | | | | | | | | | 07:25 | | | | 08:42 |
| | | | | | | | | | | | | 17:08 | | | | 16:30 |
| | | | | | | | | | | | | 07:25 | | | | 08:42 |
| | | | | | | | | | | | | 17:08 | | | | 16:30 |
| | | | | | | | | | | | | 07:25 | | | | 08:42 |
| | | | | | | | | | | | | 17:08 | | | | 16:30 |
| | | | | | | | | | | | | 07:25 | | | | 08:42 |
| | | | | | | | | | | | | 17:08 | | | | 16:30 |
| | | | | | | | | | | | | 07:25 | | | | 08:42 |
| | | | | | | | | | | | | 17:08 | | | | 16:30 |
| | | | | | | | | | | | | 07:25 | | | | 08:42 |
| | | | | | | | | | | | | 17:08 | | | | 16:30 |
| | | | | | | | | | | | | | | | | |

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 31-NW - IP 31-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | | Juni | | | |
|---------------------------|----------------|----------------|----------------|----------------|----------------|-----|--------------------------------|----------------|----|--------------------------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 4 | 20:10 (WEA 2) 20:14 (WEA 2) | 05:19 21:43 | 31 | 19:57 (WEA 2) 20:28 (WEA 2) |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 13 | 20:05 (WEA 2) 20:18 (WEA 2) | 05:18 21:44 | 30 | 19:58 (WEA 2) 20:28 (WEA 2) |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 19 | 20:03 (WEA 2) 20:22 (WEA 2) | 05:18 21:45 | 29 | 19:59 (WEA 2) 20:28 (WEA 2) |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 22 | 20:01 (WEA 2) 20:23 (WEA 2) | 05:17 21:46 | 29 | 19:59 (WEA 2) 20:28 (WEA 2) |
| 5 | 08:41 16:36 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 25 | 19:59 (WEA 2) 20:24 (WEA 2) | 05:16 21:47 | 28 | 19:59 (WEA 2) 20:27 (WEA 2) |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 28 | 19:57 (WEA 2) 20:25 (WEA 2) | 05:15 21:48 | 26 | 20:01 (WEA 2) 20:27 (WEA 2) |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 30 | 19:57 (WEA 2) 20:27 (WEA 2) | 05:15 21:49 | 25 | 20:01 (WEA 2) 20:26 (WEA 2) |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 31 | 19:56 (WEA 2) 20:27 (WEA 2) | 05:14 21:50 | 25 | 20:02 (WEA 2) 20:27 (WEA 2) |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 33 | 19:54 (WEA 2) 20:27 (WEA 2) | 05:14 21:51 | 24 | 20:03 (WEA 2) 20:27 (WEA 2) |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 34 | 19:54 (WEA 2) 20:28 (WEA 2) | 05:13 21:51 | 23 | 20:03 (WEA 2) 20:26 (WEA 2) |
| 11 | 08:38 16:44 | 07:58 17:38 | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 35 | 19:53 (WEA 2) 20:28 (WEA 2) | 05:13 21:52 | 22 | 20:04 (WEA 2) 20:26 (WEA 2) |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 35 | 19:54 (WEA 2) 20:29 (WEA 2) | 05:13 21:53 | 21 | 20:05 (WEA 2) 20:26 (WEA 2) |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 36 | 19:53 (WEA 2) 20:29 (WEA 2) | 05:12 21:53 | 21 | 20:05 (WEA 2) 20:26 (WEA 2) |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 37 | 19:53 (WEA 2) 20:30 (WEA 2) | 05:12 21:54 | 20 | 20:05 (WEA 2) 20:25 (WEA 2) |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 38 | 19:52 (WEA 2) 20:30 (WEA 2) | 05:12 21:55 | 19 | 20:06 (WEA 2) 20:25 (WEA 2) |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 38 | 19:52 (WEA 2) 20:30 (WEA 2) | 05:12 21:55 | 19 | 20:06 (WEA 2) 20:25 (WEA 2) |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 38 | 19:53 (WEA 2) 20:31 (WEA 2) | 05:12 21:56 | 18 | 20:07 (WEA 2) 20:25 (WEA 2) |
| 18 | 08:33 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 38 | 19:52 (WEA 2) 20:30 (WEA 2) | 05:12 21:56 | 18 | 20:07 (WEA 2) 20:25 (WEA 2) |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 38 | 19:52 (WEA 2) 20:30 (WEA 2) | 05:12 21:56 | 18 | 20:07 (WEA 2) 20:25 (WEA 2) |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 37 | 19:53 (WEA 2) 20:30 (WEA 2) | 05:12 21:57 | 17 | 20:09 (WEA 2) 20:26 (WEA 2) |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 38 | 19:53 (WEA 2) 20:31 (WEA 2) | 05:12 21:57 | 17 | 20:09 (WEA 2) 20:26 (WEA 2) |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 37 | 19:53 (WEA 2) 20:30 (WEA 2) | 05:12 21:57 | 17 | 20:09 (WEA 2) 20:26 (WEA 2) |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 37 | 19:53 (WEA 2) 20:30 (WEA 2) | 05:12 21:57 | 18 | 20:08 (WEA 2) 20:26 (WEA 2) |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 37 | 19:53 (WEA 2) 20:30 (WEA 2) | 05:13 21:57 | 18 | 20:09 (WEA 2) 20:27 (WEA 2) |
| 25 | 08:25 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 36 | 19:54 (WEA 2) 20:30 (WEA 2) | 05:13 21:58 | 18 | 20:09 (WEA 2) 20:27 (WEA 2) |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 35 | 19:54 (WEA 2) 20:29 (WEA 2) | 05:13 21:58 | 19 | 20:08 (WEA 2) 20:27 (WEA 2) |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 05:24 21:37 | 34 | 19:55 (WEA 2) 20:29 (WEA 2) | 05:14 21:57 | 19 | 20:09 (WEA 2) 20:28 (WEA 2) |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 34 | 19:55 (WEA 2) 20:29 (WEA 2) | 05:14 21:57 | 20 | 20:08 (WEA 2) 20:28 (WEA 2) |
| 29 | 08:19 17:14 | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 34 | 19:55 (WEA 2) 20:29 (WEA 2) | 05:15 21:57 | 20 | 20:09 (WEA 2) 20:29 (WEA 2) |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 32 | 19:57 (WEA 2) 20:29 (WEA 2) | 05:16 21:57 | 21 | 20:08 (WEA 2) 20:29 (WEA 2) |
| 31 | 08:16 17:17 | | 07:12 20:04 | | 05:20 21:42 | 32 | 19:57 (WEA 2) 20:29 (WEA 2) | | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | | 500 | | 650 |
| astr.max.mögl.Beschattung | | | | | | 995 | | | | 650 |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 31-NW - IP 31-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Juli | | August | | September | | Oktober | | November | | Dezember | |
|---------------------------|-------|------|---------------|-------|---------------|---------------|---------|-------|----------|-------|----------|--|
| 1 | 05:16 | | 20:08 (WEA 2) | 05:53 | 20:04 (WEA 2) | 06:43 | 07:32 | 07:26 | 08:18 | | | |
| | 21:57 | 22 | 20:30 (WEA 2) | 21:25 | 36 | 20:40 (WEA 2) | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 05:17 | | 20:08 (WEA 2) | 05:54 | | 20:04 (WEA 2) | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 21:56 | 23 | 20:31 (WEA 2) | 21:23 | 35 | 20:39 (WEA 2) | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 05:18 | | 20:07 (WEA 2) | 05:56 | | 20:05 (WEA 2) | 06:46 | 07:36 | 07:30 | 08:20 | | |
| | 21:56 | 24 | 20:31 (WEA 2) | 21:21 | 34 | 20:39 (WEA 2) | 20:18 | 19:08 | 17:02 | 16:24 | | |
| 4 | 05:18 | | 20:07 (WEA 2) | 05:58 | | 20:05 (WEA 2) | 06:48 | 07:37 | 07:32 | 08:22 | | |
| | 21:56 | 25 | 20:32 (WEA 2) | 21:20 | 33 | 20:38 (WEA 2) | 20:15 | 19:06 | 17:01 | 16:23 | | |
| 5 | 05:19 | | 20:07 (WEA 2) | 05:59 | | 20:06 (WEA 2) | 06:49 | 07:39 | 07:34 | 08:23 | | |
| | 21:55 | 25 | 20:32 (WEA 2) | 21:18 | 31 | 20:37 (WEA 2) | 20:13 | 19:03 | 16:59 | 16:23 | | |
| 6 | 05:20 | | 20:07 (WEA 2) | 06:01 | | 20:07 (WEA 2) | 06:51 | 07:41 | 07:35 | 08:24 | | |
| | 21:55 | 26 | 20:33 (WEA 2) | 21:16 | 29 | 20:36 (WEA 2) | 20:11 | 19:01 | 16:57 | 16:23 | | |
| 7 | 05:21 | | 20:07 (WEA 2) | 06:02 | | 20:08 (WEA 2) | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 21:54 | 27 | 20:34 (WEA 2) | 21:14 | 27 | 20:35 (WEA 2) | 20:09 | 18:59 | 16:55 | 16:22 | | |
| 8 | 05:22 | | 20:06 (WEA 2) | 06:04 | | 20:09 (WEA 2) | 06:54 | 07:44 | 07:39 | 08:27 | | |
| | 21:53 | 28 | 20:34 (WEA 2) | 21:12 | 24 | 20:33 (WEA 2) | 20:06 | 18:56 | 16:54 | 16:22 | | |
| 9 | 05:23 | | 20:06 (WEA 2) | 06:05 | | 20:11 (WEA 2) | 06:56 | 07:46 | 07:41 | 08:28 | | |
| | 21:53 | 28 | 20:34 (WEA 2) | 21:10 | 21 | 20:32 (WEA 2) | 20:04 | 18:54 | 16:52 | 16:21 | | |
| 10 | 05:24 | | 20:05 (WEA 2) | 06:07 | | 20:12 (WEA 2) | 06:58 | 07:47 | 07:43 | 08:29 | | |
| | 21:52 | 30 | 20:35 (WEA 2) | 21:09 | 18 | 20:30 (WEA 2) | 20:02 | 18:52 | 16:50 | 16:21 | | |
| 11 | 05:25 | | 20:05 (WEA 2) | 06:09 | | 20:15 (WEA 2) | 06:59 | 07:49 | 07:44 | 08:30 | | |
| | 21:51 | 31 | 20:36 (WEA 2) | 21:07 | 12 | 20:27 (WEA 2) | 19:59 | 18:50 | 16:49 | 16:21 | | |
| 12 | 05:26 | | 20:05 (WEA 2) | 06:10 | | | 07:01 | 07:51 | 07:46 | 08:31 | | |
| | 21:50 | 31 | 20:36 (WEA 2) | 21:05 | | | 19:57 | 18:47 | 16:47 | 16:21 | | |
| 13 | 05:27 | | 20:04 (WEA 2) | 06:12 | | | 07:03 | 07:53 | 07:48 | 08:32 | | |
| | 21:49 | 33 | 20:37 (WEA 2) | 21:03 | | | 19:55 | 18:45 | 16:46 | 16:21 | | |
| 14 | 05:28 | | 20:05 (WEA 2) | 06:14 | | | 07:04 | 07:54 | 07:50 | 08:33 | | |
| | 21:49 | 33 | 20:38 (WEA 2) | 21:01 | | | 19:52 | 18:43 | 16:44 | 16:21 | | |
| 15 | 05:29 | | 20:05 (WEA 2) | 06:15 | | | 07:06 | 07:56 | 07:52 | 08:34 | | |
| | 21:48 | 33 | 20:38 (WEA 2) | 20:59 | | | 19:50 | 18:41 | 16:43 | 16:21 | | |
| 16 | 05:31 | | 20:04 (WEA 2) | 06:17 | | | 07:07 | 07:58 | 07:53 | 08:35 | | |
| | 21:47 | 35 | 20:39 (WEA 2) | 20:57 | | | 19:48 | 18:39 | 16:41 | 16:21 | | |
| 17 | 05:32 | | 20:04 (WEA 2) | 06:18 | | | 07:09 | 08:00 | 07:55 | 08:36 | | |
| | 21:45 | 35 | 20:39 (WEA 2) | 20:55 | | | 19:45 | 18:36 | 16:40 | 16:21 | | |
| 18 | 05:33 | | 20:04 (WEA 2) | 06:20 | | | 07:11 | 08:01 | 07:57 | 08:37 | | |
| | 21:44 | 35 | 20:39 (WEA 2) | 20:53 | | | 19:43 | 18:34 | 16:39 | 16:21 | | |
| 19 | 05:34 | | 20:03 (WEA 2) | 06:22 | | | 07:12 | 08:03 | 07:58 | 08:37 | | |
| | 21:43 | 36 | 20:39 (WEA 2) | 20:51 | | | 19:41 | 18:32 | 16:37 | 16:22 | | |
| 20 | 05:36 | | 20:04 (WEA 2) | 06:23 | | | 07:14 | 08:05 | 08:00 | 08:38 | | |
| | 21:42 | 36 | 20:40 (WEA 2) | 20:49 | | | 19:38 | 18:30 | 16:36 | 16:22 | | |
| 21 | 05:37 | | 20:03 (WEA 2) | 06:25 | | | 07:16 | 08:07 | 08:02 | 08:39 | | |
| | 21:41 | 37 | 20:40 (WEA 2) | 20:46 | | | 19:36 | 18:28 | 16:35 | 16:23 | | |
| 22 | 05:38 | | 20:03 (WEA 2) | 06:27 | | | 07:17 | 08:08 | 08:04 | 08:39 | | |
| | 21:39 | 37 | 20:40 (WEA 2) | 20:44 | | | 19:33 | 18:26 | 16:34 | 16:23 | | |
| 23 | 05:40 | | 20:03 (WEA 2) | 06:28 | | | 07:19 | 08:10 | 08:05 | 08:40 | | |
| | 21:38 | 37 | 20:40 (WEA 2) | 20:42 | | | 19:31 | 18:24 | 16:33 | 16:24 | | |
| 24 | 05:41 | | 20:03 (WEA 2) | 06:30 | | | 07:21 | 08:12 | 08:07 | 08:40 | | |
| | 21:37 | 38 | 20:41 (WEA 2) | 20:40 | | | 19:29 | 18:22 | 16:32 | 16:24 | | |
| 25 | 05:42 | | 20:03 (WEA 2) | 06:31 | | | 07:22 | 07:14 | 08:08 | 08:41 | | |
| | 21:35 | 38 | 20:41 (WEA 2) | 20:38 | | | 19:26 | 17:20 | 16:30 | 16:25 | | |
| 26 | 05:44 | | 20:03 (WEA 2) | 06:33 | | | 07:24 | 07:16 | 08:10 | 08:41 | | |
| | 21:34 | 37 | 20:40 (WEA 2) | 20:36 | | | 19:24 | 17:18 | 16:30 | 16:25 | | |
| 27 | 05:45 | | 20:03 (WEA 2) | 06:35 | | | 07:26 | 07:17 | 08:12 | 08:41 | | |
| | 21:32 | 38 | 20:41 (WEA 2) | 20:33 | | | 19:22 | 17:16 | 16:29 | 16:26 | | |
| 28 | 05:47 | | 20:03 (WEA 2) | 06:36 | | | 07:27 | 07:19 | 08:13 | 08:41 | | |
| | 21:31 | 37 | 20:40 (WEA 2) | 20:31 | | | 19:19 | 17:14 | 16:28 | 16:27 | | |
| 29 | 05:48 | | 20:04 (WEA 2) | 06:38 | | | 07:29 | 07:21 | 08:15 | 08:42 | | |
| | 21:29 | 37 | 20:41 (WEA 2) | 20:29 | | | 19:17 | 17:12 | 16:27 | 16:28 | | |
| 30 | 05:50 | | 20:03 (WEA 2) | 06:40 | | | 07:31 | 07:23 | 08:16 | 08:42 | | |
| | 21:28 | 37 | 20:40 (WEA 2) | 20:27 | | | 19:15 | 17:10 | 16:26 | 16:29 | | |
| 31 | 05:51 | | 20:03 (WEA 2) | 06:41 | | | | 07:25 | | 08:42 | | |
| | 21:26 | 36 | 20:39 (WEA 2) | 20:25 | | | | 17:08 | | 16:30 | | |
| Sonnenscheinstunden | 503 | | | 454 | | | 381 | 331 | 266 | | 243 | |
| astr.max.mögl.Beschattung | | 1005 | | 300 | | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 32-NW - IP 32-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | | Mai | Juni | |
|---------------------------|--------|---------|-------|-------|----|---------------|---------------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | | 06:05 | 19:29 (WEA 2) | 05:19 |
| | 16:31 | 17:19 | 18:11 | 20:05 | | 20:57 | 20:05 (WEA 2) | 21:43 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | | 06:03 | 19:29 (WEA 2) | 05:18 |
| | 16:32 | 17:21 | 18:13 | 20:07 | | 20:58 | 20:04 (WEA 2) | 21:44 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | | 06:01 | 19:30 (WEA 2) | 05:18 |
| | 16:33 | 17:23 | 18:15 | 20:09 | | 21:00 | 20:04 (WEA 2) | 21:45 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | | 05:59 | 19:30 (WEA 2) | 05:17 |
| | 16:34 | 17:25 | 18:16 | 20:10 | | 21:02 | 20:04 (WEA 2) | 21:46 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | | 05:57 | 19:31 (WEA 2) | 05:16 |
| | 16:35 | 17:26 | 18:18 | 20:12 | | 21:03 | 20:03 (WEA 2) | 21:47 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | | 05:55 | 19:31 (WEA 2) | 05:15 |
| | 16:37 | 17:28 | 18:20 | 20:14 | | 21:05 | 20:02 (WEA 2) | 21:48 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | | 05:54 | 19:32 (WEA 2) | 05:15 |
| | 16:38 | 17:30 | 18:22 | 20:16 | | 21:07 | 20:02 (WEA 2) | 21:49 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | | 05:52 | 19:33 (WEA 2) | 05:14 |
| | 16:39 | 17:32 | 18:24 | 20:17 | | 21:08 | 20:01 (WEA 2) | 21:50 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | | 05:50 | 19:33 (WEA 2) | 05:14 |
| | 16:41 | 17:34 | 18:25 | 20:19 | | 21:10 | 19:59 (WEA 2) | 21:51 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | | 05:48 | 19:35 (WEA 2) | 05:13 |
| | 16:42 | 17:36 | 18:27 | 20:21 | | 21:11 | 19:59 (WEA 2) | 21:51 |
| 11 | 08:38 | 07:58 | 06:59 | 06:47 | | 05:47 | 19:36 (WEA 2) | 05:13 |
| | 16:44 | 17:38 | 18:29 | 20:22 | | 21:13 | 19:57 (WEA 2) | 21:52 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | | 05:45 | 19:38 (WEA 2) | 05:13 |
| | 16:45 | 17:40 | 18:31 | 20:24 | | 21:15 | 19:56 (WEA 2) | 21:53 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | | 05:43 | 19:39 (WEA 2) | 05:12 |
| | 16:46 | 17:41 | 18:32 | 20:26 | | 21:16 | 19:53 (WEA 2) | 21:53 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | | 05:42 | 19:43 (WEA 2) | 05:12 |
| | 16:48 | 17:43 | 18:34 | 20:28 | | 21:18 | 19:51 (WEA 2) | 21:54 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | | 05:40 | | 05:12 |
| | 16:50 | 17:45 | 18:36 | 20:29 | | 21:19 | | 21:55 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | | 05:39 | | 05:12 |
| | 16:51 | 17:47 | 18:38 | 20:31 | | 21:21 | | 21:55 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 13 | 19:43 (WEA 2) | 05:37 | 05:12 |
| | 16:53 | 17:49 | 18:39 | 20:33 | | 19:56 (WEA 2) | 21:22 | 21:56 |
| 18 | 08:33 | 07:44 | 06:42 | 06:32 | 19 | 19:40 (WEA 2) | 05:36 | 05:12 |
| | 16:54 | 17:51 | 18:41 | 20:34 | | 19:59 (WEA 2) | 21:24 | 21:56 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 23 | 19:38 (WEA 2) | 05:34 | 05:12 |
| | 16:56 | 17:53 | 18:43 | 20:36 | | 20:01 (WEA 2) | 21:25 | 21:56 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 25 | 19:37 (WEA 2) | 05:33 | 05:12 |
| | 16:58 | 17:54 | 18:45 | 20:38 | | 20:02 (WEA 2) | 21:27 | 21:57 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 28 | 19:35 (WEA 2) | 05:31 | 05:12 |
| | 16:59 | 17:56 | 18:46 | 20:40 | | 20:03 (WEA 2) | 21:28 | 21:57 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 30 | 19:34 (WEA 2) | 05:30 | 05:12 |
| | 17:01 | 17:58 | 18:48 | 20:41 | | 20:04 (WEA 2) | 21:30 | 21:57 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 32 | 19:33 (WEA 2) | 05:29 | 05:12 |
| | 17:03 | 18:00 | 18:50 | 20:43 | | 20:05 (WEA 2) | 21:31 | 21:57 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 33 | 19:32 (WEA 2) | 05:28 | 05:13 |
| | 17:05 | 18:02 | 18:52 | 20:45 | | 20:05 (WEA 2) | 21:33 | 21:57 |
| 25 | 08:25 | 07:29 | 06:26 | 06:17 | 33 | 19:32 (WEA 2) | 05:26 | 05:13 |
| | 17:06 | 18:04 | 18:53 | 20:46 | | 20:05 (WEA 2) | 21:34 | 21:58 |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 35 | 19:31 (WEA 2) | 05:25 | 05:13 |
| | 17:08 | 18:06 | 18:55 | 20:48 | | 20:06 (WEA 2) | 21:35 | 21:58 |
| 27 | 08:22 | 07:25 | 06:22 | 06:13 | 36 | 19:30 (WEA 2) | 05:24 | 05:14 |
| | 17:10 | 18:07 | 18:57 | 20:50 | | 20:06 (WEA 2) | 21:37 | 21:57 |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 35 | 19:30 (WEA 2) | 05:23 | 05:14 |
| | 17:12 | 18:09 | 18:58 | 20:51 | | 20:05 (WEA 2) | 21:38 | 21:57 |
| 29 | 08:19 | | 07:17 | 06:09 | 35 | 19:30 (WEA 2) | 05:22 | 05:15 |
| | 17:14 | | 20:00 | 20:53 | | 20:05 (WEA 2) | 21:39 | 21:57 |
| 30 | 08:18 | | 07:15 | 06:07 | 35 | 19:30 (WEA 2) | 05:21 | 05:15 |
| | 17:15 | | 20:02 | 20:55 | | 20:05 (WEA 2) | 21:40 | 21:57 |
| 31 | 08:16 | | 07:12 | | | | 05:20 | |
| | 17:17 | | 20:04 | | | | 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | | 486 | | 500 |
| astr.max.mögl.Beschattung | | | | 412 | | 371 | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 32-NW - IP 32-NW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 19:48 (WEA 2) 20:07 (WEA 2) | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 19:46 (WEA 2) 20:08 (WEA 2) | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 19:45 (WEA 2) 20:10 (WEA 2) | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 19:43 (WEA 2) 20:10 (WEA 2) | 06:48 20:15 | 07:37 19:06 | 07:32 17:01 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 19:43 (WEA 2) 20:11 (WEA 2) | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 19:41 (WEA 2) 20:12 (WEA 2) | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 08:24 16:23 |
| 7 | 05:21 21:54 | 06:02 21:14 | 19:41 (WEA 2) 20:13 (WEA 2) | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 19:40 (WEA 2) 20:12 (WEA 2) | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 19:40 (WEA 2) 20:13 (WEA 2) | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 19:39 (WEA 2) 20:13 (WEA 2) | 06:58 20:02 | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 19:39 (WEA 2) 20:14 (WEA 2) | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 19:38 (WEA 2) 20:13 (WEA 2) | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 19:38 (WEA 2) 20:14 (WEA 2) | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:49 | 06:14 21:01 | 19:37 (WEA 2) 20:13 (WEA 2) | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 19:38 (WEA 2) 20:13 (WEA 2) | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 19:37 (WEA 2) 20:12 (WEA 2) | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 19:38 (WEA 2) 20:12 (WEA 2) | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 19:37 (WEA 2) 20:11 (WEA 2) | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 19:38 (WEA 2) 20:11 (WEA 2) | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 19:38 (WEA 2) 20:09 (WEA 2) | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 19:39 (WEA 2) 20:09 (WEA 2) | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 08:39 16:23 |
| 22 | 05:38 21:39 | 06:27 20:44 | 19:40 (WEA 2) 20:08 (WEA 2) | 07:17 19:33 | 08:08 18:26 | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 19:41 (WEA 2) 20:06 (WEA 2) | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 08:40 16:24 |
| 24 | 05:41 21:37 | 06:30 20:40 | 19:42 (WEA 2) 20:04 (WEA 2) | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 19:43 (WEA 2) 20:02 (WEA 2) | 07:22 19:26 | 07:14 17:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 19:47 (WEA 2) 19:59 (WEA 2) | 07:24 19:24 | 07:16 17:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 06:35 20:33 | | 07:26 19:22 | 07:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | | 07:27 19:19 | 07:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | | 07:29 19:17 | 07:21 17:12 | 08:15 16:27 | 08:42 16:28 |
| 30 | 05:50 21:28 | 19:52 (WEA 2) 20:03 (WEA 2) | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 19:49 (WEA 2) 20:05 (WEA 2) | 06:41 20:25 | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | | | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | 27 | 454 | 763 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 32-SW - IP 32-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | | Mai | Juni |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|------------------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | | 06:05 20:57 | 19:32 (WEA 2) 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | | 06:03 20:58 | 19:31 (WEA 2) 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | | 06:01 21:00 | 19:32 (WEA 2) 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | | 05:59 21:02 | 19:32 (WEA 2) 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | | 05:57 21:03 | 19:32 (WEA 2) 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | | 05:55 21:05 | 19:32 (WEA 2) 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | | 05:54 21:07 | 19:33 (WEA 2) 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | | 05:52 21:08 | 19:33 (WEA 2) 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | | 05:50 21:10 | 19:34 (WEA 2) 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | | 05:48 21:11 | 19:35 (WEA 2) 21:51 |
| 11 | 08:38 16:44 | 07:58 17:38 | 06:59 18:29 | 06:47 20:22 | | 05:47 21:13 | 19:36 (WEA 2) 21:52 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | | 05:45 21:15 | 19:37 (WEA 2) 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | | 05:43 21:16 | 19:38 (WEA 2) 21:53 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | | 05:42 21:18 | 19:40 (WEA 2) 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | | 05:40 21:19 | 19:41 (WEA 2) 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | | 05:39 21:21 | 19:45 (WEA 2) 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | | 05:37 21:22 | 19:54 (WEA 2) 21:56 |
| 18 | 08:33 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 10 | 19:47 (WEA 2) 19:57 (WEA 2) | 05:36 21:24 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 16 | 19:44 (WEA 2) 20:00 (WEA 2) | 05:34 21:25 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 21 | 19:41 (WEA 2) 20:02 (WEA 2) | 05:33 21:27 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 25 | 19:39 (WEA 2) 20:04 (WEA 2) | 05:31 21:28 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 27 | 19:38 (WEA 2) 20:05 (WEA 2) | 05:30 21:30 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 29 | 19:37 (WEA 2) 20:06 (WEA 2) | 05:29 21:31 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 31 | 19:36 (WEA 2) 20:07 (WEA 2) | 05:28 21:33 |
| 25 | 08:25 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 32 | 19:35 (WEA 2) 20:07 (WEA 2) | 05:26 21:34 |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 33 | 19:34 (WEA 2) 20:07 (WEA 2) | 05:25 21:35 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:22 18:57 | 06:13 20:50 | 35 | 19:33 (WEA 2) 20:08 (WEA 2) | 05:24 21:37 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 35 | 19:33 (WEA 2) 20:08 (WEA 2) | 05:23 21:38 |
| 29 | 08:19 17:14 | | 07:17 20:00 | 06:09 20:53 | 36 | 19:32 (WEA 2) 20:08 (WEA 2) | 05:22 21:39 |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 35 | 19:32 (WEA 2) 20:07 (WEA 2) | 05:21 21:40 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | | 05:20 21:42 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | | 486 | 500 |
| astr.max.mögl.Beschattung | | | | 365 | | 441 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 32-SW - IP 32-SW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 19:47 (WEA 2) 20:12 (WEA 2) | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 19:46 (WEA 2) 20:12 (WEA 2) | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 19:45 (WEA 2) 20:14 (WEA 2) | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 19:44 (WEA 2) 20:14 (WEA 2) | 06:48 20:15 | 07:37 19:06 | 07:32 17:01 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 19:44 (WEA 2) 20:15 (WEA 2) | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 19:43 (WEA 2) 20:15 (WEA 2) | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 08:24 16:23 |
| 7 | 05:21 21:54 | 06:02 21:14 | 19:42 (WEA 2) 20:16 (WEA 2) | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 19:41 (WEA 2) 20:16 (WEA 2) | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 19:41 (WEA 2) 20:16 (WEA 2) | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 19:41 (WEA 2) 20:16 (WEA 2) | 06:58 20:02 | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 19:41 (WEA 2) 20:16 (WEA 2) | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 19:40 (WEA 2) 20:16 (WEA 2) | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 19:40 (WEA 2) 20:16 (WEA 2) | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:49 | 06:14 21:01 | 19:40 (WEA 2) 20:15 (WEA 2) | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:48 | 06:15 20:59 | 19:40 (WEA 2) 20:15 (WEA 2) | 07:06 19:50 | 07:56 18:41 | 07:52 16:43 | 08:34 16:21 |
| 16 | 05:30 21:47 | 06:17 20:57 | 19:40 (WEA 2) 20:14 (WEA 2) | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 19:41 (WEA 2) 20:14 (WEA 2) | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 19:40 (WEA 2) 20:13 (WEA 2) | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 19:41 (WEA 2) 20:12 (WEA 2) | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:49 | 19:42 (WEA 2) 20:10 (WEA 2) | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 19:43 (WEA 2) 20:10 (WEA 2) | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 08:39 16:23 |
| 22 | 05:38 21:39 | 06:27 20:44 | 19:44 (WEA 2) 20:08 (WEA 2) | 07:17 19:33 | 08:08 18:26 | 08:04 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 19:45 (WEA 2) 20:06 (WEA 2) | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 08:40 16:24 |
| 24 | 05:41 21:37 | 06:30 20:40 | 19:48 (WEA 2) 20:04 (WEA 2) | 07:21 19:29 | 08:12 18:22 | 08:07 16:32 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 19:51 (WEA 2) 19:59 (WEA 2) | 07:22 19:26 | 07:14 17:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | | 07:24 19:24 | 07:16 17:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 19:59 (WEA 2) 20:01 (WEA 2) | 06:35 20:33 | 07:26 19:22 | 07:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 19:54 (WEA 2) 20:05 (WEA 2) | 06:36 20:31 | 07:27 19:19 | 07:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 19:52 (WEA 2) 20:08 (WEA 2) | 06:38 20:29 | 07:29 19:17 | 07:21 17:12 | 08:15 16:27 | 08:42 16:28 |
| 30 | 05:50 21:28 | 19:50 (WEA 2) 20:09 (WEA 2) | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 19:48 (WEA 2) 20:10 (WEA 2) | 06:41 20:25 | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | | | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | 70 | 454 | 744 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenziertes Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 33 NW - IP 33 NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | | | |
|---------------------------|--------|---------|---------------|---------------|---------------|---------------|-------|--------|-----------|---------|---------------|---------------|---------------|-------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 19:18 (WEA 2) | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 21 | 19:39 (WEA 2) | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 19:17 (WEA 2) | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 19:21 (WEA 2) | 07:34 | 07:28 | 08:19 | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 21 | 19:38 (WEA 2) | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19:28 (WEA 2) | 19:10 | 17:04 | 16:25 | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 19:17 (WEA 2) | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | 19:17 (WEA 2) | 07:36 | 07:30 | 08:20 | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 22 | 19:39 (WEA 2) | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:30 (WEA 2) | 19:08 | 17:02 | 16:24 | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 19:17 (WEA 2) | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 19:15 (WEA 2) | 07:37 | 07:32 | 08:22 | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21 | 19:38 (WEA 2) | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 17:19 | 19:32 (WEA 2) | 19:05 | 17:00 | 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 19:16 (WEA 2) | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 19:13 (WEA 2) | 07:39 | 07:34 | 08:23 | | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21 | 19:37 (WEA 2) | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:19 | 19:32 (WEA 2) | 19:03 | 16:59 | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 19:17 (WEA 2) | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 19:13 (WEA 2) | 07:41 | 07:35 | 08:24 | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 20 | 19:37 (WEA 2) | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 20 | 19:33 (WEA 2) | 19:01 | 16:57 | 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 19:17 (WEA 2) | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 19:11 (WEA 2) | 07:42 | 07:37 | 08:26 | | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 19 | 19:36 (WEA 2) | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 21 | 19:32 (WEA 2) | 18:59 | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 19:18 (WEA 2) | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 19:11 (WEA 2) | 07:44 | 07:39 | 08:27 | | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 17 | 19:35 (WEA 2) | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 22 | 19:33 (WEA 2) | 18:56 | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 19:19 (WEA 2) | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 19:11 (WEA 2) | 07:46 | 07:41 | 08:28 | | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 13 | 19:32 (WEA 2) | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 22 | 19:33 (WEA 2) | 18:54 | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 19:22 (WEA 2) | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 19:10 (WEA 2) | 07:47 | 07:43 | 08:29 | | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 7 | 19:29 (WEA 2) | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 22 | 19:32 (WEA 2) | 18:51 | 16:50 | 16:21 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 19:23 (WEA 2) | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 19:11 (WEA 2) | 07:49 | 07:44 | 08:30 | | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:51 | 21:07 | 19:59 | 20 | 19:31 (WEA 2) | 18:50 | 16:49 | 16:21 | |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 19:24 (WEA 2) | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 19:10 (WEA 2) | 07:51 | 07:46 | 08:31 | | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:50 | 21:05 | 19:57 | 20 | 19:30 (WEA 2) | 18:47 | 16:47 | 16:21 | |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 19:25 (WEA 2) | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 19:11 (WEA 2) | 07:53 | 07:48 | 08:32 | | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:53 | 21:49 | 21:49 | 21:03 | 19:55 | 17 | 19:28 (WEA 2) | 18:45 | 16:46 | 16:21 | |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 19:26 (WEA 2) | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 19:13 (WEA 2) | 07:54 | 07:50 | 08:33 | | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:48 | 21:48 | 21:01 | 19:52 | 13 | 19:26 (WEA 2) | 18:43 | 16:44 | 16:21 | |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 19:27 (WEA 2) | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 19:14 (WEA 2) | 07:56 | 07:51 | 08:34 | | |
| | 16:49 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:47 | 21:47 | 20:59 | 19:50 | 9 | 19:23 (WEA 2) | 18:41 | 16:43 | 16:21 | |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 19:28 (WEA 2) | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 19:15 (WEA 2) | 07:58 | 07:53 | 08:35 | | |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 21:46 | 21:46 | 20:57 | 19:48 | 18 | 19:29 (WEA 2) | 18:39 | 16:41 | 16:21 | |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 19:29 (WEA 2) | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 19:16 (WEA 2) | 07:59 | 07:54 | 08:36 | | |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 21:45 | 20:55 | 19:45 | 18 | 19:30 (WEA 2) | 18:36 | 16:40 | 16:21 | |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 19:30 (WEA 2) | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 18 | 19:31 (WEA 2) | 08:01 | 07:57 | 08:37 | |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 21:44 | 20:53 | 19:43 | 18 | 19:32 (WEA 2) | 18:34 | 16:39 | 16:21 | |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 19:31 (WEA 2) | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 18 | 19:33 (WEA 2) | 08:03 | 07:58 | 08:37 | |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 21:43 | 20:51 | 19:40 | 18 | 19:34 (WEA 2) | 18:32 | 16:37 | 16:22 | |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 19:32 (WEA 2) | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 18 | 19:35 (WEA 2) | 08:05 | 08:00 | 08:38 | |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 21:42 | 20:48 | 19:38 | 18 | 19:36 (WEA 2) | 18:30 | 16:36 | 16:22 | |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 19:33 (WEA 2) | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 18 | 19:37 (WEA 2) | 08:07 | 08:02 | 08:39 | |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 21:41 | 20:46 | 19:36 | 18 | 19:38 (WEA 2) | 18:28 | 16:35 | 16:22 | |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 19:34 (WEA 2) | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 18 | 19:39 (WEA 2) | 08:08 | 08:03 | 08:39 | |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 21:39 | 20:44 | 19:33 | 18 | 19:40 (WEA 2) | 18:26 | 16:34 | 16:23 | |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 19:35 (WEA 2) | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 18 | 19:41 (WEA 2) | 08:10 | 08:05 | 08:40 | |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 21:38 | 20:42 | 19:31 | 18 | 19:42 (WEA 2) | 18:24 | 16:33 | 16:23 | |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 19:36 (WEA 2) | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 18 | 19:43 (WEA 2) | 08:12 | 08:07 | 08:40 | |
| | 17:05 | 18:02 | 18:51 | 20:45 | 21:33 | 21:57 | 21:37 | 21:37 | 20:40 | 19:29 | 18 | 19:44 (WEA 2) | 18:22 | 16:31 | 16:24 | |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 19:37 (WEA 2) | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 18 | 19:45 (WEA 2) | 08:14 | 08:08 | 08:41 | |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 21:57 | 21:35 | 21:35 | 20:38 | 19:26 | 18 | 19:46 (WEA 2) | 18:20 | 16:30 | 16:25 | |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 19:38 (WEA 2) | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 18 | 19:47 (WEA 2) | 08:16 | 08:10 | 08:41 | |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21:35 | 21:57 | 21:34 | 21:34 | 20:36 | 19:24 | 18 | 19:48 (WEA 2) | 18:24 | 16:29 | 16:25 | |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 19:39 (WEA 2) | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 18 | 19:49 (WEA 2) | 08:17 | 08:12 | 08:41 | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 21:57 | 21:32 | 21:32 | 20:33 | 19:22 | 18 | 19:50 (WEA 2) | 17:16 | 16:29 | 16:26 | |
| 28 | 08:20 | 07:23 | 06:19 | 18:25 (WEA 2) | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 18 | 19:51 (WEA 2) | 08:19 | 08:13 | 08:41 | |
| | 17:12 | 18:09 | 18:58 | 8 | 18:33 (WEA 2) | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 18 | 19:52 (WEA 2) | 17:14 | 16:28 | 16:27 | |
| 29 | 08:19 | 07:17 | 19:22 (WEA 2) | 06:09 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 19:17 | 18 | 19:53 (WEA 2) | 08:21 | 08:15 | 08:41 | |
| | 17:13 | 07:17 | 19:34 (WEA 2) | 20:53 | 21:39 | 21:57 | 21:29 | 21:29 | 20:29 | 19:17 | 18 | 19:54 (WEA 2) | 17:12 | 16:27 | 16:28 | |
| 30 | 08:18 | 07:15 | 19:20 (WEA 2) | 06:07 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 19:15 | 18 | 19:55 (WEA 2) | 08:23 | 08:16 | 08:42 | |
| | 17:15 | 07:15 | 19:36 (WEA 2) | 20:55 | 21:40 | 21:57 | 21:28 | 21:28 | 20:27 | 19:15 | 18 | 19:56 (WEA 2) | 17:10 | 16:26 | 16:29 | |
| 31 | 08:16 | 07:12 | 19:19 (WEA 2) | 06:05 | 05:20 | 05:14 | 05:49 | 06:41 | 07:32 | 19:15 | 18 | 19:57 (WEA 2) | 08:25 | 08:18 | 08:42 | |
| | 17:17 | 07:12 | 19:38 (WEA 2) | 20:56 | 21:41 | 21:57 | 21:26 | 21:26 | 20:24 | 19:15 | 18 | 19:58 (WEA 2) | 17:08 | 16:27 | 16:30 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 242 | 331 | 266 | 243 | | | |
| astr.max.mögl.Beschattung | | | 55 | 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 | Schattenanfang (WEA mit erstem Schatten) | Schattende (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 34 NW - IP 34 NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | | | |
|---------------------------|--------|---------|-------|-------|---------------|---------------|-------|--------|-----------|---------|---------------|---------------|---------------|-------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 19:21 (WEA 2) | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 19:23 (WEA 2) | 07:32 | 07:26 | 08:18 | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 19:40 (WEA 2) | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 6 | 19:29 (WEA 2) | 19:12 | 17:06 | 16:25 | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 19:19 (WEA 2) | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 19:20 (WEA 2) | 07:34 | 07:28 | 08:19 | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 19:40 (WEA 2) | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 12 | 19:32 (WEA 2) | 19:10 | 17:04 | 16:25 | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 19:19 (WEA 2) | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | 19:17 (WEA 2) | 07:30 | 07:20 | 08:20 | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 19:40 (WEA 2) | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 16 | 19:33 (WEA 2) | 19:08 | 17:02 | 16:24 | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 19:19 (WEA 2) | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 19:16 (WEA 2) | 07:37 | 07:32 | 08:22 | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 19:40 (WEA 2) | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 18 | 19:34 (WEA 2) | 19:05 | 17:00 | 16:23 | |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 19:18 (WEA 2) | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 19:14 (WEA 2) | 07:39 | 07:34 | 08:23 | | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 19:39 (WEA 2) | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 20 | 19:34 (WEA 2) | 19:03 | 16:59 | 16:23 | |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 19:18 (WEA 2) | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 19:14 (WEA 2) | 07:41 | 07:35 | 08:24 | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 19:39 (WEA 2) | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 21 | 19:35 (WEA 2) | 19:01 | 16:57 | 16:22 | |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 19:18 (WEA 2) | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 19:13 (WEA 2) | 07:42 | 07:37 | 08:26 | | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 19:38 (WEA 2) | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 21 | 19:34 (WEA 2) | 18:59 | 16:55 | 16:22 | |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 19:19 (WEA 2) | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 19:13 (WEA 2) | 07:44 | 07:39 | 08:27 | | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 19:37 (WEA 2) | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 21 | 19:34 (WEA 2) | 18:56 | 16:54 | 16:22 | |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 19:19 (WEA 2) | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 19:13 (WEA 2) | 07:46 | 07:41 | 08:28 | | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 19:35 (WEA 2) | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 21 | 19:34 (WEA 2) | 18:54 | 16:52 | 16:21 | |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 19:21 (WEA 2) | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 19:12 (WEA 2) | 07:47 | 07:43 | 08:29 | | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 19:33 (WEA 2) | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 21 | 19:34 (WEA 2) | 18:52 | 16:50 | 16:21 | |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 19:24 (WEA 2) | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 19:13 (WEA 2) | 07:49 | 07:44 | 08:30 | | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 6 | 19:30 (WEA 2) | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 19 | 19:32 (WEA 2) | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 07:51 | 19:13 (WEA 2) | 07:51 | 07:46 | 08:31 | | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 17 | 19:30 (WEA 2) | 18:47 | 16:47 | 16:21 | | |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 07:53 | 19:14 (WEA 2) | 07:53 | 07:48 | 08:32 | | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:53 | 21:49 | 21:03 | 19:55 | 14 | 19:28 (WEA 2) | 18:45 | 16:46 | 16:21 | | |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 07:54 | 19:16 (WEA 2) | 07:54 | 07:50 | 08:33 | | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:48 | 21:01 | 19:52 | 10 | 19:26 (WEA 2) | 18:43 | 16:44 | 16:21 | | |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 07:56 | 19:20 (WEA 2) | 07:56 | 07:51 | 08:34 | | |
| | 16:49 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:47 | 20:59 | 19:50 | 2 | 19:22 (WEA 2) | 18:41 | 16:43 | 16:21 | | |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 07:58 | 07:58 | 07:53 | 08:35 | 08:35 | | |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 21:46 | 20:57 | 19:48 | 18:39 | 16:41 | 16:21 | 16:21 | 16:21 | | |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 08:00 | 07:55 | 08:36 | 08:36 | 08:36 | | |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 16:40 | 16:21 | 16:21 | 16:21 | | |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 08:01 | 07:57 | 08:37 | 08:37 | 08:37 | | |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 16:39 | 16:21 | 16:21 | 16:21 | | |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 08:03 | 07:58 | 08:37 | 08:37 | 08:37 | | |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:40 | 18:32 | 16:37 | 16:22 | 16:22 | 16:22 | | |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 08:05 | 08:00 | 08:38 | 08:38 | 08:38 | | |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:48 | 19:38 | 18:30 | 16:36 | 16:22 | 16:22 | 16:22 | | |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 08:07 | 08:02 | 08:39 | 08:39 | 08:39 | | |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 16:35 | 16:22 | 16:22 | 16:22 | | |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 08:08 | 08:03 | 08:39 | 08:39 | 08:39 | | |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | 18:26 | 16:34 | 16:23 | 16:23 | 16:23 | | |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 08:05 | 08:40 | 08:40 | 08:40 | | |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 16:33 | 16:23 | 16:23 | 16:23 | | |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 08:07 | 08:40 | 08:40 | 08:40 | | |
| | 17:05 | 18:02 | 18:51 | 20:45 | 21:33 | 21:57 | 21:37 | 20:40 | 19:29 | 18:22 | 16:31 | 16:24 | 16:24 | 16:24 | | |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 08:14 | 08:08 | 08:41 | 08:41 | 08:41 | | |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 21:57 | 21:35 | 20:38 | 19:26 | 18:20 | 16:30 | 16:25 | 16:25 | 16:25 | | |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 08:16 | 08:10 | 08:41 | 08:41 | 08:41 | | |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21:35 | 21:57 | 21:34 | 20:36 | 19:24 | 17:18 | 16:29 | 16:25 | 16:25 | 16:25 | | |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 08:17 | 08:12 | 08:41 | 08:41 | 08:41 | | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 21:57 | 21:32 | 20:33 | 19:22 | 17:16 | 16:29 | 16:26 | 16:26 | 16:26 | | |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 08:19 | 08:13 | 08:41 | 08:41 | 08:41 | | |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 17:14 | 16:28 | 16:27 | 16:27 | 16:27 | | |
| 29 | 08:19 | 07:17 | 06:13 | 06:05 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 08:21 | 08:15 | 08:41 | 08:41 | 08:41 | | |
| | 17:13 | 18:10 | 19:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 17:12 | 16:27 | 16:28 | 16:28 | 16:28 | | |
| 30 | 08:18 | 07:15 | 06:11 | 06:03 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 08:23 | 08:16 | 08:42 | 08:42 | 08:42 | | |
| | 17:15 | 18:12 | 19:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 17:10 | 16:26 | 16:29 | 16:29 | 16:29 | | |
| 31 | 08:16 | 07:12 | 06:08 | 06:00 | 05:20 | 05:14 | 05:49 | 06:41 | 07:32 | 08:24 | 08:17 | 08:42 | 08:42 | 08:42 | | |
| | 17:17 | 18:14 | 19:04 | 20:56 | 21:41 | 21:57 | 21:26 | 20:24 | 19:12 | 17:08 | 16:26 | 16:30 | 16:30 | 16:30 | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 239 | 331 | 266 | 243 | 243 | | |
| astr.max.mögl.Beschattung | | | 38 | 196 | | | | | | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 35-NW - IP 35-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | | | |
|---------------------------|--------|---------|-------|-------|---------------|---------------|-------|--------|-----------|---------|---------------|----------|---------------|-------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 19:23 (WEA 2) | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 19:24 (WEA 2) | 07:32 | 07:26 | 08:18 | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 17 | 19:40 (WEA 2) | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 7 | 19:31 (WEA 2) | 19:12 | 17:06 | 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 19:21 (WEA 2) | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 19:21 (WEA 2) | 07:34 | 07:28 | 08:19 | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20 | 19:41 (WEA 2) | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 13 | 19:34 (WEA 2) | 19:10 | 17:04 | 16:25 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 19:20 (WEA 2) | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | 19:19 (WEA 2) | 07:36 | 07:30 | 08:20 | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21 | 19:41 (WEA 2) | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 15 | 19:34 (WEA 2) | 19:08 | 17:02 | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 19:20 (WEA 2) | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 19:18 (WEA 2) | 07:37 | 07:32 | 08:22 | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21 | 19:41 (WEA 2) | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 18 | 19:36 (WEA 2) | 19:05 | 17:00 | 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 19:19 (WEA 2) | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 19:16 (WEA 2) | 07:39 | 07:34 | 08:23 | | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21 | 19:40 (WEA 2) | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19 | 19:35 (WEA 2) | 19:03 | 16:59 | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 19:19 (WEA 2) | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 19:15 (WEA 2) | 07:41 | 07:35 | 08:24 | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21 | 19:40 (WEA 2) | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 21 | 19:36 (WEA 2) | 19:01 | 16:57 | 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 19:20 (WEA 2) | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 19:14 (WEA 2) | 07:42 | 07:37 | 08:26 | | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 19 | 19:39 (WEA 2) | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 21 | 19:35 (WEA 2) | 18:59 | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 19:20 (WEA 2) | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 19:14 (WEA 2) | 07:44 | 07:39 | 08:27 | | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 19 | 19:39 (WEA 2) | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 21 | 19:35 (WEA 2) | 18:56 | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 19:21 (WEA 2) | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 19:15 (WEA 2) | 07:46 | 07:41 | 08:28 | | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 15 | 19:36 (WEA 2) | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 20 | 19:35 (WEA 2) | 18:54 | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 19:22 (WEA 2) | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 19:14 (WEA 2) | 07:47 | 07:43 | 08:29 | | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 13 | 19:35 (WEA 2) | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 20 | 19:34 (WEA 2) | 18:52 | 16:50 | 16:21 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 19:25 (WEA 2) | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | 19:15 (WEA 2) | 07:49 | 07:44 | 08:30 | | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 7 | 19:32 (WEA 2) | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 17 | 19:32 (WEA 2) | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 19:26 (WEA 2) | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | 19:15 (WEA 2) | 07:51 | 07:46 | 08:31 | | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 15 | 19:30 (WEA 2) | 18:47 | 16:47 | 16:21 | | |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 19:27 (WEA 2) | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | 19:16 (WEA 2) | 07:53 | 07:48 | 08:32 | | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:53 | 21:49 | 21:03 | 19:55 | 12 | 19:28 (WEA 2) | 18:45 | 16:46 | 16:21 | | |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 19:28 (WEA 2) | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | 19:19 (WEA 2) | 07:54 | 07:50 | 08:33 | | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:48 | 21:01 | 19:52 | 7 | 19:26 (WEA 2) | 18:43 | 16:44 | 16:21 | | |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 19:29 (WEA 2) | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | 19:20 (WEA 2) | 07:56 | 07:51 | 08:34 | | |
| | 16:49 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:47 | 20:59 | 19:50 | 18:41 | 16:43 | 16:21 | 16:21 | 16:21 | | |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 19:30 (WEA 2) | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | 19:21 (WEA 2) | 07:58 | 07:53 | 08:35 | | |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 21:46 | 20:57 | 19:48 | 18:39 | 16:41 | 16:21 | 16:21 | 16:21 | | |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 19:31 (WEA 2) | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | 19:22 (WEA 2) | 07:59 | 07:55 | 08:36 | | |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | 18:36 | 16:40 | 16:21 | 16:21 | 16:21 | | |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 19:32 (WEA 2) | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | 19:23 (WEA 2) | 07:59 | 07:57 | 08:37 | | |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | 18:34 | 16:39 | 16:21 | 16:21 | 16:21 | | |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 19:33 (WEA 2) | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | 19:24 (WEA 2) | 07:59 | 07:58 | 08:37 | | |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:40 | 18:32 | 16:37 | 16:22 | 16:22 | 16:22 | | |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 19:34 (WEA 2) | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | 19:25 (WEA 2) | 07:59 | 08:00 | 08:38 | | |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:48 | 19:38 | 18:30 | 16:36 | 16:22 | 16:22 | 16:22 | | |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 19:35 (WEA 2) | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | 19:26 (WEA 2) | 07:59 | 08:02 | 08:39 | | |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | 18:28 | 16:35 | 16:22 | 16:22 | 16:22 | | |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 19:36 (WEA 2) | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | 19:27 (WEA 2) | 07:59 | 08:03 | 08:39 | | |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | 18:26 | 16:34 | 16:23 | 16:23 | 16:23 | | |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 19:37 (WEA 2) | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | 19:28 (WEA 2) | 07:59 | 08:05 | 08:40 | | |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | 18:24 | 16:33 | 16:23 | 16:23 | 16:23 | | |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 19:38 (WEA 2) | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | 19:29 (WEA 2) | 07:59 | 08:07 | 08:40 | | |
| | 17:05 | 18:02 | 18:51 | 20:45 | 21:33 | 21:57 | 21:37 | 20:40 | 19:29 | 18:22 | 16:31 | 16:24 | 16:24 | 16:24 | | |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 19:39 (WEA 2) | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | 19:30 (WEA 2) | 07:59 | 08:08 | 08:41 | | |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 21:57 | 21:35 | 20:38 | 19:26 | 18:20 | 16:30 | 16:25 | 16:25 | 16:25 | | |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 19:40 (WEA 2) | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 19:31 (WEA 2) | 07:59 | 08:10 | 08:41 | | |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21:35 | 21:57 | 21:34 | 20:36 | 19:24 | 18:17 | 16:29 | 16:25 | 16:25 | 16:25 | | |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 19:41 (WEA 2) | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 19:32 (WEA 2) | 07:59 | 08:12 | 08:41 | | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 21:57 | 21:32 | 20:33 | 19:22 | 18:16 | 16:29 | 16:26 | 16:26 | 16:26 | | |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 19:42 (WEA 2) | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 19:33 (WEA 2) | 07:59 | 08:13 | 08:41 | | |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | 18:14 | 16:28 | 16:27 | 16:27 | 16:27 | | |
| 29 | 08:19 | 07:17 | 06:13 | 06:05 | 19:43 (WEA 2) | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 19:34 (WEA 2) | 07:59 | 08:15 | 08:41 | | |
| | 17:13 | 18:10 | 19:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | 18:12 | 16:27 | 16:28 | 16:28 | 16:28 | | |
| 30 | 08:18 | 07:14 | 06:10 | 06:02 | 19:44 (WEA 2) | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 19:35 (WEA 2) | 07:59 | 08:16 | 08:42 | | |
| | 17:15 | 18:12 | 19:03 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | 18:10 | 16:26 | 16:29 | 16:29 | 16:29 | | |
| 31 | 08:16 | 07:12 | 06:08 | 06:00 | 19:45 (WEA 2) | 05:20 | 05:15 | 05:51 | 06:41 | 07:32 | 19:36 (WEA 2) | 07:59 | 08:16 | 08:42 | | |
| | 17:17 | 18:14 | 19:06 | 20:56 | 21:41 | 21:57 | 21:26 | 20:24 | 19:16 | 18:11 | 16:27 | 16:30 | 16:30 | 16:30 | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 226 | 331 | 266 | 243 | 243 | 243 | 243 |
| astr.max.mögl.Beschattung | | | 31 | 194 | | | | | | | | | | | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 36-NW - IP 36-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | | April | | Mai | Juni | |
|---------------------------|----------------|----------------|----------------|---|----------------|-----|--------------------------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | | 07:10 20:05 | 16 | 19:24 (WEA 2) 19:40 (WEA 2) | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | | 07:08 20:07 | 19 | 19:22 (WEA 2) 19:41 (WEA 2) | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | | 07:05 20:09 | 21 | 19:21 (WEA 2) 19:42 (WEA 2) | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | | 07:03 20:10 | 21 | 19:21 (WEA 2) 19:42 (WEA 2) | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | | 07:01 20:12 | 23 | 19:19 (WEA 2) 19:42 (WEA 2) | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | | 06:58 20:14 | 23 | 19:19 (WEA 2) 19:42 (WEA 2) | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | | 06:56 20:16 | 22 | 19:19 (WEA 2) 19:41 (WEA 2) | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | | 06:54 20:17 | 21 | 19:20 (WEA 2) 19:41 (WEA 2) | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | | 06:52 20:19 | 20 | 19:19 (WEA 2) 19:39 (WEA 2) | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | | 06:49 20:21 | 18 | 19:20 (WEA 2) 19:38 (WEA 2) | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | | 06:47 20:22 | 16 | 19:21 (WEA 2) 19:37 (WEA 2) | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | | 06:45 20:24 | 12 | 19:23 (WEA 2) 19:35 (WEA 2) | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | | 06:43 20:26 | 6 | 19:26 (WEA 2) 19:32 (WEA 2) | 05:43 21:16 | 05:12 21:53 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | | 06:40 20:28 | | | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 06:49 18:36 | | 06:38 20:29 | | | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | | 06:36 20:31 | | | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | | 06:34 20:33 | | | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | | 06:32 20:34 | | | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | | 06:29 20:36 | | | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | | 06:27 20:38 | | | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | | 06:25 20:40 | | | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | | 06:23 20:41 | | | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | | 06:21 20:43 | | | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | | 06:19 20:45 | | | 05:28 21:33 | 05:13 21:57 |
| 25 | 08:24 17:06 | 07:29 18:04 | 06:26 18:53 | | 06:17 20:46 | | | 05:26 21:34 | 05:13 21:57 |
| 26 | 08:23 17:08 | 07:27 18:05 | 06:24 18:55 | | 06:15 20:48 | | | 05:25 21:35 | 05:13 21:57 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | | 06:13 20:50 | | | 05:24 21:37 | 05:14 21:57 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | | 06:11 20:51 | | | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | | 07:17 20:00 | | 06:09 20:53 | | | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | 19:29 (WEA 2) | 06:07 20:55 | | | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | 7 19:36 (WEA 2) 12 19:38 (WEA 2) | | | | 05:20 21:41 | |
| Sonnenscheinstunden | 258 | 277 | 367 | | 416 | | | 486 | 500 |
| astr.max.mögl.Beschattung | | | | 19 | | 238 | | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 36-NW - IP 36-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

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

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 37-NW - IP 37-NW
Annahmen für Schattenwurfberechnung

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

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

| | Januar | Februar | März | | April | | Mai | Juni | |
|---------------------------|----------------|----------------|----------------|----|--------------------------------|-----|--------------------------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | | 07:10 20:05 | 14 | 19:26 (WEA 2) 19:40 (WEA 2) | 06:05 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | | 07:08 20:07 | 17 | 19:24 (WEA 2) 19:41 (WEA 2) | 06:03 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | | 07:05 20:09 | 20 | 19:23 (WEA 2) 19:43 (WEA 2) | 06:01 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | | 07:03 20:10 | 21 | 19:22 (WEA 2) 19:43 (WEA 2) | 05:59 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | | 07:01 20:12 | 21 | 19:21 (WEA 2) 19:42 (WEA 2) | 05:57 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | | 06:58 20:14 | 23 | 19:20 (WEA 2) 19:43 (WEA 2) | 05:55 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | | 06:56 20:16 | 21 | 19:21 (WEA 2) 19:42 (WEA 2) | 05:54 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | | 06:54 20:17 | 21 | 19:21 (WEA 2) 19:42 (WEA 2) | 05:52 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | | 06:52 20:19 | 21 | 19:20 (WEA 2) 19:41 (WEA 2) | 05:50 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | | 06:49 20:21 | 19 | 19:21 (WEA 2) 19:40 (WEA 2) | 05:48 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | | 06:47 20:22 | 17 | 19:22 (WEA 2) 19:39 (WEA 2) | 05:47 21:13 | 05:13 21:52 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | | 06:45 20:24 | 13 | 19:24 (WEA 2) 19:37 (WEA 2) | 05:45 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | | 06:43 20:26 | 8 | 19:26 (WEA 2) 19:34 (WEA 2) | 05:43 21:16 | 05:12 21:53 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | | 06:40 20:28 | | | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 06:49 18:36 | | 06:38 20:29 | | | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | | 06:36 20:31 | | | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | | 06:34 20:33 | | | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | | 06:32 20:34 | | | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | | 06:29 20:36 | | | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | | 06:27 20:38 | | | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | | 06:25 20:40 | | | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | | 06:23 20:41 | | | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | | 06:21 20:43 | | | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | | 06:19 20:45 | | | 05:28 21:33 | 05:13 21:57 |
| 25 | 08:24 17:06 | 07:29 18:04 | 06:26 18:53 | | 06:17 20:46 | | | 05:26 21:34 | 05:13 21:57 |
| 26 | 08:23 17:08 | 07:27 18:05 | 06:24 18:55 | | 06:15 20:48 | | | 05:25 21:35 | 05:13 21:57 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | | 06:13 20:50 | | | 05:24 21:37 | 05:14 21:57 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | | 06:11 20:51 | | | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:13 | | 07:17 20:00 | | 06:09 20:53 | | | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | | 06:07 20:55 | | | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | 10 | 19:28 (WEA 2) 19:38 (WEA 2) | | | 05:20 21:41 | |
| Sonnenscheinstunden | 258 | 277 | 367 | | 416 | | | 486 | 500 |
| astr.max.mögl.Beschattung | | | | 10 | | 236 | | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 37-NW - IP 37-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 19:21 (WEA 2) 19:38 (WEA 2) | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 19:20 (WEA 2) 19:39 (WEA 2) | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 19:18 (WEA 2) 19:39 (WEA 2) | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 19:18 (WEA 2) 19:39 (WEA 2) | 07:37 19:06 | 07:32 17:00 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 19:17 (WEA 2) 19:38 (WEA 2) | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 19:17 (WEA 2) 19:39 (WEA 2) | 07:41 19:01 | 07:35 16:57 | 08:24 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 19:16 (WEA 2) 19:38 (WEA 2) | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 19:16 (WEA 2) 19:37 (WEA 2) | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 06:56 20:04 | 19:17 (WEA 2) 19:37 (WEA 2) | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 19:17 (WEA 2) 19:34 (WEA 2) | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 19:18 (WEA 2) 19:32 (WEA 2) | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 19:19 (WEA 2) 19:30 (WEA 2) | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 19:23 (WEA 2) 19:27 (WEA 2) | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:48 | 06:13 21:01 | 07:04 19:52 | | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:47 | 06:15 20:59 | 07:06 19:50 | | 07:56 18:41 | 07:51 16:43 | 08:34 16:21 |
| 16 | 05:30 21:46 | 06:17 20:57 | 07:07 19:48 | | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:41 | | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:48 | 07:14 19:38 | | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | | 08:07 18:28 | 08:02 16:35 | 08:39 16:22 |
| 22 | 05:38 21:39 | 06:27 20:44 | 07:17 19:33 | | 08:08 18:26 | 08:03 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | | 08:10 18:24 | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | | 08:12 18:22 | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | | 07:14 17:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | | 07:16 17:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 06:35 20:33 | 07:26 19:22 | | 07:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | | 07:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | | 07:21 17:12 | 08:15 16:27 | 08:41 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 19:26 (WEA 2) 19:34 (WEA 2) | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:24 | 19:23 (WEA 2) 19:37 (WEA 2) | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | 22 | 230 | | | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 38-NW - IP 38-NW
Annahmen für Schattenwurfberechnung

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

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

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 38-NW - IP 38-NW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|----------------|-----------------------------------|-----------------------------------|----------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 17 19:22 (WEA 2) 19:39 (WEA 2) | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 19 19:21 (WEA 2) 19:40 (WEA 2) | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 20 19:20 (WEA 2) 19:40 (WEA 2) | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 22 19:19 (WEA 2) 19:41 (WEA 2) | 07:37 19:06 | 07:32 17:00 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 22 19:18 (WEA 2) 19:40 (WEA 2) | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 22 19:18 (WEA 2) 19:40 (WEA 2) | 07:41 19:01 | 07:35 16:57 | 08:24 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 22 19:17 (WEA 2) 19:39 (WEA 2) | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 20 19:18 (WEA 2) 19:38 (WEA 2) | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 06:56 20:04 | 18 19:19 (WEA 2) 19:37 (WEA 2) | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 15 19:19 (WEA 2) 19:34 (WEA 2) | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 12 19:20 (WEA 2) 19:32 (WEA 2) | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 8 19:22 (WEA 2) 19:30 (WEA 2) | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:48 | 06:13 21:01 | 07:04 19:52 | | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:47 | 06:15 20:59 | 07:06 19:50 | | 07:56 18:41 | 07:51 16:43 | 08:34 16:21 |
| 16 | 05:30 21:46 | 06:17 20:57 | 07:07 19:48 | | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:40 | | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:48 | 07:14 19:38 | | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | | 08:07 18:28 | 08:02 16:35 | 08:39 16:22 |
| 22 | 05:38 21:39 | 06:27 20:44 | 07:17 19:33 | | 08:08 18:26 | 08:03 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | | 08:10 18:24 | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | | 08:12 18:22 | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | | 07:14 17:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | | 07:16 17:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 06:35 20:33 | 07:26 19:22 | | 07:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | | 07:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | | 07:21 17:12 | 08:15 16:27 | 08:41 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 11 19:26 (WEA 2) 19:37 (WEA 2) | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:24 | 15 19:24 (WEA 2) 19:39 (WEA 2) | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | 26 | | 217 | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 39-NW - IP 39-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni |
|---------------------------|----------------|----------------|----------------|--------------------------------|---------------------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | 11 19:29 (WEA 2) 20:57 | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 15 19:26 (WEA 2) 20:58 | 05:18 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 18 19:25 (WEA 2) 21:00 | 05:18 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 20 19:24 (WEA 2) 21:02 | 05:17 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 21 19:23 (WEA 2) 21:03 | 05:16 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 21 19:23 (WEA 2) 21:05 | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 22 19:22 (WEA 2) 21:07 | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 21 19:23 (WEA 2) 21:08 | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 20 19:22 (WEA 2) 21:10 | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 18 19:23 (WEA 2) 21:11 | 05:13 21:51 |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | 16 19:24 (WEA 2) 21:13 | 05:13 21:52 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 14 19:25 (WEA 2) 21:15 | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 10 19:27 (WEA 2) 21:16 | 05:12 21:53 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 |
| 15 | 08:35 16:49 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:51 | 06:19 20:45 | 05:28 21:33 | 05:13 21:57 |
| 25 | 08:24 17:08 | 07:29 18:05 | 06:26 18:55 | 06:17 20:48 | 05:26 21:35 | 05:13 21:57 |
| 26 | 08:23 17:10 | 07:27 18:07 | 06:24 18:57 | 06:15 20:50 | 05:25 21:37 | 05:13 21:57 |
| 27 | 08:22 17:12 | 07:25 18:09 | 06:21 18:58 | 06:13 20:51 | 05:24 21:38 | 05:14 21:57 |
| 28 | 08:20 17:14 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 05:14 21:57 |
| 29 | 08:19 17:15 | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:14 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | 19:32 (WEA 2) 19:38 (WEA 2) | 05:20 21:41 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 |
| astr.max.mögl.Beschattung | | | 6 | 227 | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 39-NW - IP 39-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|----------------|-----------------------------------|-----------------------------------|----------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 16 19:23 (WEA 2) 19:39 (WEA 2) | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 18 19:22 (WEA 2) 19:40 (WEA 2) | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 20 19:20 (WEA 2) 19:40 (WEA 2) | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 21 19:20 (WEA 2) 19:41 (WEA 2) | 07:37 19:05 | 07:32 17:00 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 21 19:19 (WEA 2) 19:40 (WEA 2) | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 21 19:19 (WEA 2) 19:40 (WEA 2) | 07:41 19:01 | 07:35 16:57 | 08:24 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 21 19:18 (WEA 2) 19:39 (WEA 2) | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 20 19:18 (WEA 2) 19:38 (WEA 2) | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 06:56 20:04 | 18 19:19 (WEA 2) 19:37 (WEA 2) | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 15 19:19 (WEA 2) 19:34 (WEA 2) | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 11 19:21 (WEA 2) 19:32 (WEA 2) | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 8 19:22 (WEA 2) 19:30 (WEA 2) | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:48 | 06:13 21:01 | 07:04 19:52 | | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:47 | 06:15 20:59 | 07:06 19:50 | | 07:56 18:41 | 07:51 16:43 | 08:34 16:21 |
| 16 | 05:30 21:46 | 06:17 20:57 | 07:07 19:48 | | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 07:09 19:45 | | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | 07:11 19:43 | | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | 07:12 19:40 | | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:48 | 07:14 19:38 | | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | 07:16 19:36 | | 08:07 18:28 | 08:02 16:35 | 08:39 16:22 |
| 22 | 05:38 21:39 | 06:27 20:44 | 07:17 19:33 | | 08:08 18:26 | 08:03 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | 07:19 19:31 | | 08:10 18:24 | 08:05 16:33 | 08:40 16:23 |
| 24 | 05:41 21:37 | 06:30 20:40 | 07:21 19:29 | | 08:12 18:22 | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | 07:22 19:26 | | 07:14 17:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | 07:24 19:24 | | 07:16 17:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 06:35 20:33 | 07:26 19:22 | | 07:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | 07:27 19:19 | | 07:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | 07:29 19:17 | | 07:21 17:12 | 08:15 16:27 | 08:41 16:28 |
| 30 | 05:50 21:28 | 06:40 20:27 | 10 19:27 (WEA 2) 19:37 (WEA 2) | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 06:41 20:24 | 14 19:25 (WEA 2) 19:39 (WEA 2) | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 381 | | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | 24 | | 210 | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 40-NW - IP 40-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | May | Juni | Juli | August | September | Oktober | November | Dezember | | | | | |
|---------------------------|--------|---------|-------|-------|---------------|---------------|-------|--------|-----------|---------|---------------|----------|---------------|-------|-------|-------|-----|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 19:31 (WEA 2) | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 19:23 (WEA 2) | 07:32 | 07:26 | 08:18 | | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 9 | 19:40 (WEA 2) | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 18 | 19:41 (WEA 2) | 19:12 | 17:06 | 16:25 | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | | 19:28 (WEA 2) | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | | 19:23 (WEA 2) | 07:34 | 07:28 | 08:19 | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 13 | 19:41 (WEA 2) | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 19 | 19:42 (WEA 2) | 19:10 | 17:04 | 16:25 | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | | 19:27 (WEA 2) | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | | 19:21 (WEA 2) | 07:36 | 07:30 | 08:20 | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 16 | 19:43 (WEA 2) | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 20 | 19:41 (WEA 2) | 19:08 | 17:02 | 16:24 | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | | 19:26 (WEA 2) | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | | 19:21 (WEA 2) | 07:37 | 07:32 | 08:22 | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 19 | 19:45 (WEA 2) | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 21 | 19:42 (WEA 2) | 19:05 | 17:00 | 16:23 | |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | | 19:24 (WEA 2) | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | | 19:20 (WEA 2) | 07:39 | 07:34 | 08:23 | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21 | 19:45 (WEA 2) | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 21 | 19:41 (WEA 2) | 19:03 | 16:59 | 16:23 | |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | | 19:24 (WEA 2) | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | | 19:20 (WEA 2) | 07:41 | 07:35 | 08:24 | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21 | 19:45 (WEA 2) | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 21 | 19:41 (WEA 2) | 19:01 | 16:57 | 16:22 | |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | | 19:24 (WEA 2) | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | | 19:19 (WEA 2) | 07:42 | 07:37 | 08:26 | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21 | 19:45 (WEA 2) | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 21 | 19:40 (WEA 2) | 18:59 | 16:55 | 16:22 | |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | | 19:24 (WEA 2) | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | | 19:20 (WEA 2) | 07:44 | 07:39 | 08:27 | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21 | 19:45 (WEA 2) | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 19 | 19:39 (WEA 2) | 18:56 | 16:54 | 16:22 | |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | | 19:23 (WEA 2) | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | | 19:21 (WEA 2) | 07:46 | 07:41 | 08:28 | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 20 | 19:43 (WEA 2) | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 16 | 19:37 (WEA 2) | 18:54 | 16:52 | 16:21 | |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | | 19:24 (WEA 2) | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | | 19:21 (WEA 2) | 07:47 | 07:43 | 08:29 | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 19 | 19:45 (WEA 2) | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 13 | 19:34 (WEA 2) | 18:52 | 16:50 | 16:21 | |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | | 19:24 (WEA 2) | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | | 19:23 (WEA 2) | 07:49 | 07:44 | 08:30 | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 18 | 19:42 (WEA 2) | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | 9 | 19:32 (WEA 2) | 18:50 | 16:49 | 16:21 | |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | | 19:26 (WEA 2) | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | | 19:27 (WEA 2) | 07:51 | 07:46 | 08:31 | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 15 | 19:41 (WEA 2) | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | 2 | 19:29 (WEA 2) | 18:47 | 16:47 | 16:21 | |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | | 19:27 (WEA 2) | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | | 19:27 (WEA 2) | 07:53 | 07:48 | 08:32 | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 12 | 19:39 (WEA 2) | 21:16 | 21:53 | 21:49 | 21:03 | 19:55 | | 19:27 (WEA 2) | 18:45 | 16:46 | 16:21 | |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | | 19:30 (WEA 2) | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | | 19:27 (WEA 2) | 07:54 | 07:50 | 08:33 | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 4 | 19:34 (WEA 2) | 21:18 | 21:54 | 21:48 | 21:01 | 19:52 | | 19:27 (WEA 2) | 18:43 | 16:44 | 16:21 | |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | | 19:28 (WEA 2) | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | | 19:27 (WEA 2) | 07:56 | 07:51 | 08:34 | |
| | 16:49 | 17:45 | 18:36 | 20:29 | | 19:28 (WEA 2) | 21:19 | 21:55 | 21:47 | 20:59 | 19:50 | | 19:27 (WEA 2) | 18:41 | 16:43 | 16:21 | |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | | 19:28 (WEA 2) | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | | 19:27 (WEA 2) | 07:58 | 07:53 | 08:35 | |
| | 16:51 | 17:47 | 18:38 | 20:31 | | 19:28 (WEA 2) | 21:21 | 21:55 | 21:46 | 20:57 | 19:48 | | 19:27 (WEA 2) | 18:39 | 16:41 | 16:21 | |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | | 19:28 (WEA 2) | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | | 19:27 (WEA 2) | 08:00 | 07:55 | 08:36 | |
| | 16:53 | 17:49 | 18:39 | 20:33 | | 19:28 (WEA 2) | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | | 19:27 (WEA 2) | 18:36 | 16:40 | 16:21 | |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | | 19:28 (WEA 2) | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | | 19:27 (WEA 2) | 08:01 | 07:57 | 08:37 | |
| | 16:54 | 17:51 | 18:41 | 20:34 | | 19:28 (WEA 2) | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | | 19:27 (WEA 2) | 18:34 | 16:39 | 16:21 | |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | | 19:28 (WEA 2) | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | | 19:27 (WEA 2) | 08:03 | 07:58 | 08:37 | |
| | 16:56 | 17:53 | 18:43 | 20:36 | | 19:28 (WEA 2) | 21:25 | 21:56 | 21:43 | 20:51 | 19:40 | | 19:27 (WEA 2) | 18:32 | 16:37 | 16:22 | |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | | 19:28 (WEA 2) | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | | 19:27 (WEA 2) | 08:05 | 08:00 | 08:38 | |
| | 16:58 | 17:54 | 18:45 | 20:38 | | 19:28 (WEA 2) | 21:27 | 21:57 | 21:42 | 20:48 | 19:38 | | 19:27 (WEA 2) | 18:30 | 16:36 | 16:22 | |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | | 19:28 (WEA 2) | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | | 19:27 (WEA 2) | 08:07 | 08:02 | 08:39 | |
| | 16:59 | 17:56 | 18:46 | 20:40 | | 19:28 (WEA 2) | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | | 19:27 (WEA 2) | 18:28 | 16:35 | 16:22 | |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | | 19:28 (WEA 2) | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | | 19:27 (WEA 2) | 08:08 | 08:03 | 08:39 | |
| | 17:01 | 17:58 | 18:48 | 20:41 | | 19:28 (WEA 2) | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | | 19:27 (WEA 2) | 18:26 | 16:34 | 16:23 | |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | | 19:28 (WEA 2) | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | | 19:27 (WEA 2) | 08:10 | 08:05 | 08:40 | |
| | 17:03 | 18:00 | 18:50 | 20:43 | | 19:28 (WEA 2) | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | | 19:27 (WEA 2) | 18:24 | 16:33 | 16:23 | |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | | 19:28 (WEA 2) | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | | 19:27 (WEA 2) | 08:12 | 08:07 | 08:40 | |
| | 17:05 | 18:02 | 18:51 | 20:45 | | 19:28 (WEA 2) | 21:33 | 21:57 | 21:37 | 20:40 | 19:29 | | 19:27 (WEA 2) | 18:22 | 16:31 | 16:24 | |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | | 19:28 (WEA 2) | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | | 19:27 (WEA 2) | 08:14 | 08:08 | 08:41 | |
| | 17:06 | 18:04 | 18:53 | 20:46 | | 19:28 (WEA 2) | 21:34 | 21:57 | 21:35 | 20:38 | 19:26 | | 19:27 (WEA 2) | 18:20 | 16:30 | 16:25 | |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | | 19:28 (WEA 2) | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | | 19:27 (WEA 2) | 08:16 | 08:10 | 08:41 | |
| | 17:08 | 18:05 | 18:55 | 20:48 | | 19:28 (WEA 2) | 21:35 | 21:57 | 21:34 | 20:36 | 19:24 | | 19:27 (WEA 2) | 17:18 | 16:29 | 16:25 | |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | | 19:28 (WEA 2) | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | | 19:27 (WEA 2) | 08:17 | 08:12 | 08:41 | |
| | 17:10 | 18:07 | 18:57 | 20:50 | | 19:28 (WEA 2) | 21:37 | 21:57 | 21:32 | 20:33 | 19:22 | | 19:27 (WEA 2) | 17:16 | 16:29 | 16:26 | |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | | 19:28 (WEA 2) | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | | 19:27 (WEA 2) | 08:19 | 08:13 | 08:41 | |
| | 17:12 | 18:09 | 18:58 | 20:51 | | 19:28 (WEA 2) | 21:38 | 21:57 | 21:31 | 20:31 | 19:19 | | 19:27 (WEA 2) | 17:14 | 16:28 | 16:27 | |
| 29 | 08:19 | 07:17 | 06:09 | 06:02 | | 19:28 (WEA 2) | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | | 19:27 (WEA 2) | 08:21 | 08:15 | 08:41 | |
| | 17:13 | 18:10 | 19:00 | 20:53 | | 19:28 (WEA 2) | 21:39 | 21:57 | 21:29 | 20:29 | 19:17 | | 19:27 (WEA 2) | 17:12 | 16:27 | 16:28 | |
| 30 | 08:18 | 07:14 | 06:07 | 06:00 | | 19:28 (WEA 2) | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | | 19:27 (WEA 2) | 08:23 | 08:16 | 08:42 | |
| | 17:15 | 18:12 | 19:02 | 20:55 | | 19:28 (WEA 2) | 21:40 | 21:57 | 21:28 | 20:27 | 19:15 | | 19:27 (WEA 2) | 17:10 | 16:26 | 16:29 | |
| 31 | 08:16 | 07:12 | 06:05 | 06:00 | | 19:28 (WEA 2) | 05:20 | 05:15 | 05:51 | 06:41 | 07:32 | | 19:27 (WEA 2) | 08:25 | 08:18 | 08:42 | |
| | 17:17 | 18:14 | 19:04 | 20:57 | | 19:28 (WEA 2) | 21:41 | 21:26 | 20:24 | 16 | 19:41 (WEA 2) | | 19:27 (WEA 2) | 17:08 | 16:23 | 16:30 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | | | 486 | 500 | 503 | 454 | 381 | | 381 | 200 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 229 | | | | | | 33 | | | | | | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 41-NW - IP 41-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | May | Juni | Juli | August | September | Oktober | November | Dezember | |
|---------------------------|--------|---------|-------|-------|-------|-------|-------|--------|------------------|------------------|----------|----------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 05:16 | 05:53 | 06:43 | 19:24 (WEA 2) | 07:32 | 07:26 | 08:18 |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 21:57 | 21:25 | 20:22 | 23 19:47 (WEA 2) | 19:12 | 17:06 | 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 05:17 | 05:54 | 06:45 | 19:24 (WEA 2) | 07:34 | 07:28 | 08:19 |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 21:56 | 21:23 | 20:20 | 23 19:47 (WEA 2) | 19:10 | 17:04 | 16:25 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 05:18 | 05:17 | 05:56 | 06:46 | 19:23 (WEA 2) | 07:36 | 07:30 | 08:20 |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 23 19:46 (WEA 2) | 19:08 | 17:02 | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 19:24 (WEA 2) | 07:37 | 07:32 | 08:22 |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 22 19:46 (WEA 2) | 19:06 | 17:00 | 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 19:23 (WEA 2) | 07:39 | 07:34 | 08:23 |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 21 19:44 (WEA 2) | 19:03 | 16:59 | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 19:24 (WEA 2) | 07:41 | 07:35 | 08:24 |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 20 19:44 (WEA 2) | 19:01 | 16:57 | 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 19:25 (WEA 2) | 07:42 | 07:37 | 08:26 |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 17 19:42 (WEA 2) | 18:59 | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 19:26 (WEA 2) | 07:44 | 07:39 | 08:27 |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 13 19:39 (WEA 2) | 18:56 | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 19:27 (WEA 2) | 07:46 | 07:41 | 08:28 |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 8 19:37 (WEA 2) | 18:54 | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | | 07:47 | 07:43 | 08:29 |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | | 18:52 | 16:50 | 16:21 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 06:59 | | 07:49 | 07:44 | 08:30 |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 19:59 | | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 07:01 | | 07:51 | 07:46 | 08:31 |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 19:57 | | 18:47 | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 07:03 | | 07:53 | 07:48 | 08:32 |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:53 | 21:49 | 21:03 | 19:55 | | 18:45 | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 07:04 | | 07:54 | 07:50 | 08:33 |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:48 | 21:01 | 19:52 | | 18:43 | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 07:06 | | 07:56 | 07:51 | 08:34 |
| | 16:49 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:47 | 20:59 | 19:50 | | 18:41 | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 07:07 | | 07:58 | 07:53 | 08:35 |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 21:46 | 20:57 | 19:48 | | 18:39 | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 07:09 | | 08:00 | 07:55 | 08:36 |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 19:45 | | 18:36 | 16:40 | 16:21 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 07:11 | | 08:01 | 07:57 | 08:37 |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 19:43 | | 18:34 | 16:39 | 16:21 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 07:12 | | 08:03 | 07:58 | 08:37 |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19:41 | | 18:32 | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 05:33 | 05:12 | 05:36 | 06:23 | 07:14 | | 08:05 | 08:00 | 08:38 |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | 21:57 | 21:42 | 20:48 | 19:38 | | 18:30 | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 05:31 | 05:12 | 05:37 | 06:25 | 07:16 | | 08:07 | 08:02 | 08:39 |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | 21:57 | 21:41 | 20:46 | 19:36 | | 18:28 | 16:35 | 16:22 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 05:30 | 05:12 | 05:38 | 06:27 | 07:17 | | 08:08 | 08:03 | 08:39 |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 21:57 | 21:39 | 20:44 | 19:33 | | 18:26 | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 05:29 | 05:12 | 05:40 | 06:28 | 07:19 | | 08:10 | 08:05 | 08:40 |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 21:57 | 21:38 | 20:42 | 19:31 | | 18:24 | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 05:28 | 05:13 | 05:41 | 06:30 | 07:21 | | 08:12 | 08:07 | 08:40 |
| | 17:05 | 18:02 | 18:52 | 20:45 | 21:33 | 21:57 | 21:37 | 20:40 | 19:29 | | 18:22 | 16:31 | 16:24 |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 05:26 | 05:13 | 05:42 | 06:31 | 07:22 | | 07:14 | 08:08 | 08:41 |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 21:57 | 21:35 | 20:38 | 19:26 | | 17:20 | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 05:25 | 05:13 | 05:44 | 06:33 | 07:24 | 9 19:33 (WEA 2) | 07:16 | 08:10 | 08:41 |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21:35 | 21:57 | 21:34 | 20:36 | 19:42 (WEA 2) | 19:24 | 17:18 | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 05:24 | 05:14 | 05:45 | 06:35 | 07:26 | 19:30 (WEA 2) | 07:17 | 08:12 | 08:41 |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 21:57 | 21:32 | 20:33 | 19:44 (WEA 2) | 19:22 | 17:16 | 16:29 | 16:26 |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 05:23 | 05:14 | 05:47 | 06:36 | 07:27 | 19:29 (WEA 2) | 07:19 | 08:13 | 08:41 |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21:38 | 21:57 | 21:31 | 20:31 | 19:46 (WEA 2) | 19:19 | 17:14 | 16:28 | 16:27 |
| 29 | 08:19 | 07:17 | 06:09 | 06:01 | 05:22 | 05:15 | 05:48 | 06:38 | 07:29 | 19:27 (WEA 2) | 07:21 | 08:15 | 08:41 |
| | 17:13 | 18:10 | 19:00 | 20:53 | 21:39 | 21:57 | 21:29 | 20:29 | 19:46 (WEA 2) | 19:17 | 17:12 | 16:27 | 16:28 |
| 30 | 08:18 | 07:15 | 06:07 | 06:00 | 05:21 | 05:15 | 05:50 | 06:40 | 07:31 | 19:26 (WEA 2) | 07:23 | 08:16 | 08:42 |
| | 17:15 | 18:12 | 19:02 | 20:55 | 21:40 | 21:57 | 21:28 | 20:27 | 21 19:47 (WEA 2) | 19:15 | 17:10 | 16:26 | 16:29 |
| 31 | 08:16 | 07:12 | 06:04 | 06:00 | 05:20 | 05:14 | 05:51 | 06:41 | 07:32 | 19:26 (WEA 2) | 07:25 | 08:19 | 08:42 |
| | 17:17 | 18:14 | 19:04 | 20:57 | 21:41 | 21:58 | 21:26 | 20:24 | 21 19:47 (WEA 2) | | 17:08 | 16:27 | 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 170 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 269 | | | | 101 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|--|--|
|--------------|-----------------------|-------------------------|----------------------|--|--|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 42-NW - IP 42-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | | | |
|---------------------------|--------|---------|-------|-------|-------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|-------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 05:19 | 20:38 (WEA 2) | 05:16 | 20:39 (WEA 2) | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 21:43 | 22 | 21:00 (WEA 2) | 21:57 | 32 | 21:11 (WEA 2) | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 05:18 | 20:37 (WEA 2) | 05:17 | 20:40 (WEA 2) | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 21:44 | 24 | 21:01 (WEA 2) | 21:56 | 31 | 21:11 (WEA 2) | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 05:18 | 20:37 (WEA 2) | 05:18 | 20:40 (WEA 2) | 05:56 | 06:46 | 07:36 | 07:30 | 08:20 | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 25 | 21:02 (WEA 2) | 21:56 | 30 | 21:10 (WEA 2) | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 20:36 (WEA 2) | 05:18 | 20:40 (WEA 2) | 05:58 | 06:48 | 07:37 | 07:32 | 08:22 | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 21:46 | 27 | 21:03 (WEA 2) | 21:56 | 30 | 21:10 (WEA 2) | 21:20 | 20:15 | 19:06 | 17:01 | 16:24 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 05:16 | 20:35 (WEA 2) | 05:19 | 20:41 (WEA 2) | 05:59 | 06:50 | 07:39 | 07:34 | 08:23 | | |
| | 16:36 | 17:26 | 18:18 | 20:12 | 21:03 | 21:47 | 28 | 21:04 (WEA 2) | 21:55 | 30 | 21:11 (WEA 2) | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 05:16 | 20:36 (WEA 2) | 05:20 | 20:42 (WEA 2) | 06:01 | 06:51 | 07:41 | 07:35 | 08:24 | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 21:48 | 28 | 21:04 (WEA 2) | 21:55 | 29 | 21:11 (WEA 2) | 21:16 | 20:11 | 19:01 | 16:57 | 16:23 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | 05:15 | 20:35 (WEA 2) | 05:21 | 20:43 (WEA 2) | 06:02 | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | 21:49 | 29 | 21:04 (WEA 2) | 21:54 | 27 | 21:10 (WEA 2) | 21:14 | 20:09 | 18:59 | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | 05:14 | 20:35 (WEA 2) | 05:22 | 20:43 (WEA 2) | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | 21:50 | 30 | 21:05 (WEA 2) | 21:53 | 27 | 21:10 (WEA 2) | 21:12 | 20:06 | 18:56 | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | 05:14 | 20:36 (WEA 2) | 05:23 | 20:43 (WEA 2) | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | 21:51 | 30 | 21:06 (WEA 2) | 21:53 | 26 | 21:09 (WEA 2) | 21:10 | 20:04 | 18:54 | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | 05:13 | 20:35 (WEA 2) | 05:24 | 20:44 (WEA 2) | 06:07 | 06:58 | 07:47 | 07:43 | 08:29 | | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | 21:51 | 31 | 21:06 (WEA 2) | 21:52 | 25 | 21:09 (WEA 2) | 21:09 | 20:02 | 18:52 | 16:50 | 16:21 |
| 11 | 08:38 | 07:58 | 06:59 | 06:47 | 05:47 | 05:13 | 20:35 (WEA 2) | 05:25 | 20:45 (WEA 2) | 06:09 | 06:59 | 07:49 | 07:44 | 08:30 | | |
| | 16:44 | 17:38 | 18:29 | 20:22 | 21:13 | 21:52 | 31 | 21:06 (WEA 2) | 21:51 | 23 | 21:08 (WEA 2) | 21:07 | 19:59 | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | 05:13 | 20:35 (WEA 2) | 05:26 | 20:46 (WEA 2) | 06:10 | 07:01 | 07:51 | 07:46 | 08:31 | | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 32 | 21:07 (WEA 2) | 21:50 | 21 | 21:07 (WEA 2) | 21:05 | 19:57 | 18:47 | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | 05:12 | 20:36 (WEA 2) | 05:27 | 20:47 (WEA 2) | 06:12 | 07:03 | 07:53 | 07:48 | 08:32 | | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:53 | 32 | 21:08 (WEA 2) | 21:49 | 19 | 21:06 (WEA 2) | 21:03 | 19:55 | 18:45 | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | 05:12 | 20:35 (WEA 2) | 05:28 | 20:49 (WEA 2) | 06:14 | 07:04 | 07:54 | 07:50 | 08:33 | | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 32 | 21:07 (WEA 2) | 21:48 | 17 | 21:06 (WEA 2) | 21:01 | 19:52 | 18:43 | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | 05:12 | 20:35 (WEA 2) | 05:29 | 20:50 (WEA 2) | 06:15 | 07:06 | 07:56 | 07:51 | 08:34 | | |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 33 | 21:08 (WEA 2) | 21:48 | 15 | 21:05 (WEA 2) | 20:59 | 19:50 | 18:41 | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | 05:12 | 20:35 (WEA 2) | 05:31 | 20:52 (WEA 2) | 06:17 | 07:07 | 07:58 | 07:53 | 08:35 | | |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 33 | 21:08 (WEA 2) | 21:47 | 11 | 21:03 (WEA 2) | 20:57 | 19:48 | 18:39 | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | 05:12 | 20:35 (WEA 2) | 05:32 | 20:56 (WEA 2) | 06:18 | 07:09 | 08:00 | 07:55 | 08:36 | | |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | 21:56 | 33 | 21:08 (WEA 2) | 21:45 | 3 | 20:59 (WEA 2) | 20:55 | 19:45 | 18:36 | 16:40 | 16:21 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | 05:12 | 20:35 (WEA 2) | 05:33 | 06:20 (WEA 2) | 06:20 | 07:11 | 08:01 | 07:57 | 08:37 | | |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 21:56 | 33 | 21:08 (WEA 2) | 21:44 | | 20:53 | 19:43 | 18:34 | 16:39 | 16:21 | |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | 05:12 | 20:35 (WEA 2) | 05:34 | 06:22 (WEA 2) | 06:22 | 07:12 | 08:03 | 07:58 | 08:37 | | |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 21:56 | 34 | 21:09 (WEA 2) | 21:43 | | 20:51 | 19:41 | 18:32 | 16:37 | 16:22 | |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 05:33 | 05:12 | 20:37 (WEA 2) | 05:36 | 06:23 (WEA 2) | 06:23 | 07:14 | 08:05 | 08:00 | 08:38 | | |
| | 16:58 | 17:55 | 18:45 | 20:38 | 21:27 | 21:57 | 33 | 21:10 (WEA 2) | 21:42 | | 20:49 | 19:38 | 18:30 | 16:36 | 16:22 | |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 05:31 | 05:12 | 20:37 (WEA 2) | 05:37 | 06:25 (WEA 2) | 06:25 | 07:16 | 08:07 | 08:02 | 08:39 | | |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | 21:57 | 33 | 21:10 (WEA 2) | 21:41 | | 20:46 | 19:36 | 18:28 | 16:35 | 16:23 | |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 05:30 | 05:12 | 20:37 (WEA 2) | 05:38 | 06:27 (WEA 2) | 06:27 | 07:17 | 08:08 | 08:04 | 08:39 | | |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 21:57 | 33 | 21:10 (WEA 2) | 21:39 | | 20:44 | 19:33 | 18:26 | 16:34 | 16:23 | |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 05:29 | 05:12 | 20:37 (WEA 2) | 05:40 | 06:28 (WEA 2) | 06:28 | 07:19 | 08:10 | 08:05 | 08:40 | | |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 21:57 | 33 | 21:10 (WEA 2) | 21:38 | | 20:42 | 19:31 | 18:24 | 16:33 | 16:24 | |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 05:28 | 05:13 | 20:37 (WEA 2) | 05:41 | 06:30 (WEA 2) | 06:30 | 07:21 | 08:12 | 08:07 | 08:40 | | |
| | 17:05 | 18:02 | 18:52 | 20:45 | 21:33 | 21:57 | 34 | 21:11 (WEA 2) | 21:37 | | 20:40 | 19:29 | 18:22 | 16:32 | 16:24 | |
| 25 | 08:25 | 07:29 | 06:26 | 06:17 | 05:26 | 05:13 | 20:37 (WEA 2) | 05:42 | 06:31 (WEA 2) | 06:31 | 07:22 | 07:14 | 08:08 | 08:41 | | |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 21:58 | 33 | 21:10 (WEA 2) | 21:35 | | 20:38 | 19:26 | 17:20 | 16:30 | 16:25 | |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 05:25 | 05:13 | 20:37 (WEA 2) | 05:44 | 06:33 (WEA 2) | 06:33 | 07:24 | 07:16 | 08:10 | 08:41 | | |
| | 17:08 | 18:06 | 18:55 | 20:48 | 21:35 | 21:58 | 33 | 21:10 (WEA 2) | 21:34 | | 20:36 | 19:24 | 17:18 | 16:30 | 16:25 | |
| 27 | 08:22 | 07:25 | 06:22 | 06:13 | 05:24 | 05:14 | 20:38 (WEA 2) | 05:45 | 06:35 (WEA 2) | 06:35 | 07:26 | 07:17 | 08:12 | 08:41 | | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 8 | 20:44 (WEA 2) | 05:14 | 20:52 (WEA 2) | 21:57 | 33 | 21:11 (WEA 2) | 21:32 | 16:29 | 16:26 | |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 05:23 | 05:14 | 20:42 (WEA 2) | 05:14 | 20:38 (WEA 2) | 05:47 | 06:36 | 07:27 | 07:19 | 08:13 | 08:41 | |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21:38 | 13 | 20:55 (WEA 2) | 21:57 | 32 | 21:10 (WEA 2) | 21:31 | 20:31 | 19:19 | 17:14 | 16:28 | 16:27 |
| 29 | 08:19 | 07:17 | 06:09 | 05:22 | 05:15 | 05:15 | 20:40 (WEA 2) | 05:15 | 20:39 (WEA 2) | 05:48 | 06:38 | 07:29 | 07:21 | 08:15 | 08:42 | |
| | 17:14 | | 20:00 | 20:53 | 21:39 | 16 | 20:56 (WEA 2) | 21:57 | 32 | 21:11 (WEA 2) | 21:29 | 20:29 | 19:17 | 17:12 | 16:27 | 16:28 |
| 30 | 08:18 | 07:15 | 06:07 | 05:21 | 05:16 | 05:16 | 20:40 (WEA 2) | 05:16 | 20:38 (WEA 2) | 05:50 | 06:40 | 07:31 | 07:23 | 08:16 | 08:42 | |
| | 17:15 | | 20:02 | 20:55 | 21:40 | 19 | 20:59 (WEA 2) | 21:57 | 32 | 21:10 (WEA 2) | 21:28 | 20:27 | 19:15 | 17:10 | 16:26 | 16:29 |
| 31 | 08:16 | 07:12 | | 05:20 | | | 20:39 (WEA 2) | | | 05:51 | 06:41 | | 07:25 | | 08:42 | |
| | 17:17 | 20:04 | | 21:42 | 20 | 20:59 (WEA 2) | | 21:26 | | 20:25 | | 17:08 | | 16:30 | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | | 503 | | 454 | 381 | 331 | 266 | 243 | | |
| astr.max.mögl.Beschattung | | | | | 76 | 928 | | 396 | | | | | | | | |

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: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 43-NW - IP 43-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | | Juni | | |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----|--------------------------------|-----------------------------------|-----------------------------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | | 05:19 21:43 | 20:16 (WEA 2) 30 20:46 (WEA 2) | |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | | 05:18 21:44 | 20:16 (WEA 2) 30 20:46 (WEA 2) | |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | | 05:18 21:45 | 20:17 (WEA 2) 30 20:47 (WEA 2) | |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | | 05:17 21:46 | 20:17 (WEA 2) 29 20:46 (WEA 2) | |
| 5 | 08:41 16:36 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | | 05:16 21:47 | 20:17 (WEA 2) 29 20:46 (WEA 2) | |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | | 05:15 21:48 | 20:18 (WEA 2) 28 20:46 (WEA 2) | |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | | 05:15 21:49 | 20:17 (WEA 2) 29 20:46 (WEA 2) | |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | | 05:14 21:50 | 20:18 (WEA 2) 28 20:46 (WEA 2) | |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 4 | 20:27 (WEA 2) 20:31 (WEA 2) | 05:14 21:51 | 20:19 (WEA 2) 27 20:46 (WEA 2) |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 12 | 20:24 (WEA 2) 20:36 (WEA 2) | 05:13 21:51 | 20:19 (WEA 2) 27 20:46 (WEA 2) |
| 11 | 08:38 16:44 | 07:57 17:38 | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 16 | 20:21 (WEA 2) 20:37 (WEA 2) | 05:13 21:52 | 20:19 (WEA 2) 27 20:46 (WEA 2) |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 19 | 20:20 (WEA 2) 20:39 (WEA 2) | 05:13 21:53 | 20:20 (WEA 2) 26 20:46 (WEA 2) |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 22 | 20:18 (WEA 2) 20:40 (WEA 2) | 05:12 21:53 | 20:21 (WEA 2) 25 20:46 (WEA 2) |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 24 | 20:18 (WEA 2) 20:42 (WEA 2) | 05:12 21:54 | 20:20 (WEA 2) 26 20:46 (WEA 2) |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 26 | 20:16 (WEA 2) 20:42 (WEA 2) | 05:12 21:55 | 20:21 (WEA 2) 25 20:46 (WEA 2) |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 27 | 20:16 (WEA 2) 20:43 (WEA 2) | 05:12 21:55 | 20:21 (WEA 2) 25 20:46 (WEA 2) |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 28 | 20:16 (WEA 2) 20:44 (WEA 2) | 05:12 21:56 | 20:21 (WEA 2) 25 20:46 (WEA 2) |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 29 | 20:15 (WEA 2) 20:44 (WEA 2) | 05:12 21:56 | 20:22 (WEA 2) 24 20:46 (WEA 2) |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 29 | 20:15 (WEA 2) 20:44 (WEA 2) | 05:12 21:56 | 20:22 (WEA 2) 24 20:46 (WEA 2) |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 30 | 20:15 (WEA 2) 20:45 (WEA 2) | 05:12 21:57 | 20:23 (WEA 2) 24 20:47 (WEA 2) |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 30 | 20:15 (WEA 2) 20:45 (WEA 2) | 05:12 21:57 | 20:23 (WEA 2) 24 20:47 (WEA 2) |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 31 | 20:14 (WEA 2) 20:45 (WEA 2) | 05:12 21:57 | 20:23 (WEA 2) 24 20:47 (WEA 2) |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 31 | 20:14 (WEA 2) 20:45 (WEA 2) | 05:12 21:57 | 20:23 (WEA 2) 24 20:47 (WEA 2) |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 32 | 20:14 (WEA 2) 20:46 (WEA 2) | 05:13 21:57 | 20:24 (WEA 2) 24 20:48 (WEA 2) |
| 25 | 08:25 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 32 | 20:14 (WEA 2) 20:46 (WEA 2) | 05:13 21:58 | 20:24 (WEA 2) 24 20:48 (WEA 2) |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 32 | 20:14 (WEA 2) 20:46 (WEA 2) | 05:13 21:58 | 20:23 (WEA 2) 25 20:48 (WEA 2) |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 32 | 20:14 (WEA 2) 20:46 (WEA 2) | 05:14 21:57 | 20:24 (WEA 2) 25 20:49 (WEA 2) |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 32 | 20:14 (WEA 2) 20:46 (WEA 2) | 05:14 21:57 | 20:23 (WEA 2) 26 20:49 (WEA 2) |
| 29 | 08:19 17:14 | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 32 | 20:14 (WEA 2) 20:46 (WEA 2) | 05:15 21:57 | 20:24 (WEA 2) 26 20:50 (WEA 2) |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 32 | 20:15 (WEA 2) 20:47 (WEA 2) | 05:16 21:57 | 20:23 (WEA 2) 26 20:49 (WEA 2) |
| 31 | 08:16 17:17 | | 07:12 20:04 | | 05:20 21:42 | 30 | 20:16 (WEA 2) 20:46 (WEA 2) | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | 500 | | |
| astr.max.mögl.Beschattung | | | | | 612 | | 786 | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 43-NW - IP 43-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Juli | | August | | September | | Oktober | | November | | Dezember | |
|---------------------------|-------|-----|---------------|-------|-----------|---------------|---------|-------|----------|-------|----------|--|
| 1 | 05:16 | | 20:24 (WEA 2) | 05:53 | | 20:31 (WEA 2) | 06:43 | 07:32 | 07:26 | 08:18 | | |
| | 21:57 | 26 | 20:50 (WEA 2) | 21:25 | 18 | 20:49 (WEA 2) | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 05:17 | | 20:24 (WEA 2) | 05:54 | | 20:32 (WEA 2) | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 21:56 | 27 | 20:51 (WEA 2) | 21:23 | 15 | 20:47 (WEA 2) | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 05:18 | | 20:23 (WEA 2) | 05:56 | | 20:35 (WEA 2) | 06:46 | 07:36 | 07:30 | 08:20 | | |
| | 21:56 | 28 | 20:51 (WEA 2) | 21:21 | 10 | 20:45 (WEA 2) | 20:18 | 19:08 | 17:02 | 16:24 | | |
| 4 | 05:18 | | 20:24 (WEA 2) | 05:58 | | | 06:48 | 07:37 | 07:32 | 08:22 | | |
| | 21:56 | 27 | 20:51 (WEA 2) | 21:20 | | | 20:15 | 19:06 | 17:01 | 16:23 | | |
| 5 | 05:19 | | 20:24 (WEA 2) | 05:59 | | | 06:49 | 07:39 | 07:34 | 08:23 | | |
| | 21:55 | 28 | 20:52 (WEA 2) | 21:18 | | | 20:13 | 19:03 | 16:59 | 16:23 | | |
| 6 | 05:20 | | 20:24 (WEA 2) | 06:01 | | | 06:51 | 07:41 | 07:35 | 08:24 | | |
| | 21:55 | 28 | 20:52 (WEA 2) | 21:16 | | | 20:11 | 19:01 | 16:57 | 16:23 | | |
| 7 | 05:21 | | 20:24 (WEA 2) | 06:02 | | | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 21:54 | 29 | 20:53 (WEA 2) | 21:14 | | | 20:09 | 18:59 | 16:55 | 16:22 | | |
| 8 | 05:22 | | 20:23 (WEA 2) | 06:04 | | | 06:54 | 07:44 | 07:39 | 08:27 | | |
| | 21:53 | 29 | 20:52 (WEA 2) | 21:12 | | | 20:06 | 18:56 | 16:54 | 16:22 | | |
| 9 | 05:23 | | 20:23 (WEA 2) | 06:05 | | | 06:56 | 07:46 | 07:41 | 08:28 | | |
| | 21:53 | 30 | 20:53 (WEA 2) | 21:10 | | | 20:04 | 18:54 | 16:52 | 16:21 | | |
| 10 | 05:24 | | 20:23 (WEA 2) | 06:07 | | | 06:58 | 07:47 | 07:43 | 08:29 | | |
| | 21:52 | 30 | 20:53 (WEA 2) | 21:09 | | | 20:02 | 18:52 | 16:50 | 16:21 | | |
| 11 | 05:25 | | 20:23 (WEA 2) | 06:09 | | | 06:59 | 07:49 | 07:44 | 08:30 | | |
| | 21:51 | 31 | 20:54 (WEA 2) | 21:07 | | | 19:59 | 18:50 | 16:49 | 16:21 | | |
| 12 | 05:26 | | 20:23 (WEA 2) | 06:10 | | | 07:01 | 07:51 | 07:46 | 08:31 | | |
| | 21:50 | 31 | 20:54 (WEA 2) | 21:05 | | | 19:57 | 18:47 | 16:47 | 16:21 | | |
| 13 | 05:27 | | 20:23 (WEA 2) | 06:12 | | | 07:03 | 07:53 | 07:48 | 08:32 | | |
| | 21:49 | 31 | 20:54 (WEA 2) | 21:03 | | | 19:55 | 18:45 | 16:46 | 16:21 | | |
| 14 | 05:28 | | 20:24 (WEA 2) | 06:14 | | | 07:04 | 07:54 | 07:50 | 08:33 | | |
| | 21:48 | 31 | 20:55 (WEA 2) | 21:01 | | | 19:52 | 18:43 | 16:44 | 16:21 | | |
| 15 | 05:29 | | 20:24 (WEA 2) | 06:15 | | | 07:06 | 07:56 | 07:51 | 08:34 | | |
| | 21:48 | 31 | 20:55 (WEA 2) | 20:59 | | | 19:50 | 18:41 | 16:43 | 16:21 | | |
| 16 | 05:31 | | 20:24 (WEA 2) | 06:17 | | | 07:07 | 07:58 | 07:53 | 08:35 | | |
| | 21:46 | 31 | 20:55 (WEA 2) | 20:57 | | | 19:48 | 18:39 | 16:41 | 16:21 | | |
| 17 | 05:32 | | 20:24 (WEA 2) | 06:18 | | | 07:09 | 08:00 | 07:55 | 08:36 | | |
| | 21:45 | 31 | 20:55 (WEA 2) | 20:55 | | | 19:45 | 18:36 | 16:40 | 16:21 | | |
| 18 | 05:33 | | 20:23 (WEA 2) | 06:20 | | | 07:11 | 08:01 | 07:57 | 08:37 | | |
| | 21:44 | 32 | 20:55 (WEA 2) | 20:53 | | | 19:43 | 18:34 | 16:39 | 16:21 | | |
| 19 | 05:34 | | 20:23 (WEA 2) | 06:22 | | | 07:12 | 08:03 | 07:58 | 08:37 | | |
| | 21:43 | 32 | 20:55 (WEA 2) | 20:51 | | | 19:41 | 18:32 | 16:37 | 16:22 | | |
| 20 | 05:36 | | 20:24 (WEA 2) | 06:23 | | | 07:14 | 08:05 | 08:00 | 08:38 | | |
| | 21:42 | 32 | 20:56 (WEA 2) | 20:49 | | | 19:38 | 18:30 | 16:36 | 16:22 | | |
| 21 | 05:37 | | 20:24 (WEA 2) | 06:25 | | | 07:16 | 08:07 | 08:02 | 08:39 | | |
| | 21:41 | 32 | 20:56 (WEA 2) | 20:46 | | | 19:36 | 18:28 | 16:35 | 16:23 | | |
| 22 | 05:38 | | 20:24 (WEA 2) | 06:27 | | | 07:17 | 08:08 | 08:04 | 08:39 | | |
| | 21:39 | 31 | 20:55 (WEA 2) | 20:44 | | | 19:33 | 18:26 | 16:34 | 16:23 | | |
| 23 | 05:40 | | 20:24 (WEA 2) | 06:28 | | | 07:19 | 08:10 | 08:05 | 08:40 | | |
| | 21:38 | 31 | 20:55 (WEA 2) | 20:42 | | | 19:31 | 18:24 | 16:33 | 16:24 | | |
| 24 | 05:41 | | 20:25 (WEA 2) | 06:30 | | | 07:21 | 08:12 | 08:07 | 08:40 | | |
| | 21:37 | 30 | 20:55 (WEA 2) | 20:40 | | | 19:29 | 18:22 | 16:32 | 16:24 | | |
| 25 | 05:42 | | 20:25 (WEA 2) | 06:31 | | | 07:22 | 07:14 | 08:08 | 08:41 | | |
| | 21:35 | 30 | 20:55 (WEA 2) | 20:38 | | | 19:26 | 17:20 | 16:30 | 16:25 | | |
| 26 | 05:44 | | 20:25 (WEA 2) | 06:33 | | | 07:24 | 07:16 | 08:10 | 08:41 | | |
| | 21:34 | 29 | 20:54 (WEA 2) | 20:36 | | | 19:24 | 17:18 | 16:30 | 16:25 | | |
| 27 | 05:45 | | 20:26 (WEA 2) | 06:35 | | | 07:26 | 07:17 | 08:12 | 08:41 | | |
| | 21:32 | 28 | 20:54 (WEA 2) | 20:33 | | | 19:22 | 17:16 | 16:29 | 16:26 | | |
| 28 | 05:47 | | 20:27 (WEA 2) | 06:36 | | | 07:27 | 07:19 | 08:13 | 08:41 | | |
| | 21:31 | 26 | 20:53 (WEA 2) | 20:31 | | | 19:19 | 17:14 | 16:28 | 16:27 | | |
| 29 | 05:48 | | 20:28 (WEA 2) | 06:38 | | | 07:29 | 07:21 | 08:15 | 08:41 | | |
| | 21:29 | 25 | 20:53 (WEA 2) | 20:29 | | | 19:17 | 17:12 | 16:27 | 16:28 | | |
| 30 | 05:50 | | 20:28 (WEA 2) | 06:40 | | | 07:31 | 07:23 | 08:16 | 08:42 | | |
| | 21:28 | 24 | 20:52 (WEA 2) | 20:27 | | | 19:15 | 17:10 | 16:26 | 16:29 | | |
| 31 | 05:51 | | 20:29 (WEA 2) | 06:41 | | | | 07:25 | | 08:42 | | |
| | 21:26 | 21 | 20:50 (WEA 2) | 20:25 | | | | 17:08 | | 16:30 | | |
| Sonnenscheinstunden | 503 | | | 454 | | | 381 | 331 | 266 | 243 | | |
| astr.max.mögl.Beschattung | | 902 | | | 43 | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 44-NW - IP 44-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | | Juni | |
|---------------------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|-----------------------------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | | 05:19 21:43 | 29 20:18 (WEA 2) 20:47 (WEA 2) |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | | 05:18 21:44 | 29 20:18 (WEA 2) 20:47 (WEA 2) |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | | 05:18 21:45 | 29 20:19 (WEA 2) 20:48 (WEA 2) |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | | 05:17 21:46 | 28 20:19 (WEA 2) 20:47 (WEA 2) |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | | 05:16 21:47 | 28 20:19 (WEA 2) 20:47 (WEA 2) |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | | 05:15 21:48 | 27 20:20 (WEA 2) 20:47 (WEA 2) |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | | 05:15 21:49 | 26 20:20 (WEA 2) 20:46 (WEA 2) |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | | 05:14 21:50 | 26 20:21 (WEA 2) 20:47 (WEA 2) |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 2 20:30 (WEA 2) | 05:14 21:51 | 26 20:21 (WEA 2) 20:47 (WEA 2) |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 12 20:25 (WEA 2) | 05:13 21:51 | 25 20:21 (WEA 2) 20:46 (WEA 2) |
| 11 | 08:38 16:44 | 07:57 17:38 | 06:59 18:29 | 06:47 20:22 | 05:47 21:13 | 16 20:23 (WEA 2) | 05:13 21:52 | 25 20:22 (WEA 2) 20:47 (WEA 2) |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 19 20:39 (WEA 2) | 05:13 21:53 | 24 20:23 (WEA 2) 20:47 (WEA 2) |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 21 20:41 (WEA 2) | 05:12 21:53 | 24 20:23 (WEA 2) 20:47 (WEA 2) |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 23 20:20 (WEA 2) | 05:12 21:54 | 23 20:23 (WEA 2) 20:46 (WEA 2) |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 25 20:43 (WEA 2) | 05:12 21:55 | 23 20:23 (WEA 2) 20:46 (WEA 2) |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 26 20:18 (WEA 2) | 05:12 21:55 | 23 20:24 (WEA 2) 20:47 (WEA 2) |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 27 20:18 (WEA 2) | 05:12 21:56 | 23 20:24 (WEA 2) 20:47 (WEA 2) |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 28 20:45 (WEA 2) | 05:12 21:56 | 23 20:24 (WEA 2) 20:47 (WEA 2) |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 29 20:17 (WEA 2) | 05:12 21:56 | 22 20:25 (WEA 2) 20:47 (WEA 2) |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 29 20:46 (WEA 2) | 05:12 21:57 | 22 20:26 (WEA 2) 20:48 (WEA 2) |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 30 20:17 (WEA 2) | 05:12 21:57 | 22 20:26 (WEA 2) 20:48 (WEA 2) |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 30 20:47 (WEA 2) | 05:12 21:57 | 22 20:26 (WEA 2) 20:48 (WEA 2) |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 30 20:16 (WEA 2) | 05:12 21:57 | 22 20:26 (WEA 2) 20:48 (WEA 2) |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 31 20:46 (WEA 2) | 05:13 21:57 | 23 20:26 (WEA 2) 20:49 (WEA 2) |
| 25 | 08:25 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 31 20:16 (WEA 2) | 05:13 21:58 | 23 20:26 (WEA 2) 20:49 (WEA 2) |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 31 20:47 (WEA 2) | 05:13 21:58 | 23 20:26 (WEA 2) 20:49 (WEA 2) |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 31 20:16 (WEA 2) | 05:14 21:57 | 24 20:26 (WEA 2) 20:50 (WEA 2) |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 31 20:47 (WEA 2) | 05:14 21:57 | 23 20:26 (WEA 2) 20:49 (WEA 2) |
| 29 | 08:19 17:14 | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 30 20:17 (WEA 2) | 05:15 21:57 | 24 20:26 (WEA 2) 20:50 (WEA 2) |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 30 20:47 (WEA 2) | 05:16 21:57 | 24 20:26 (WEA 2) 20:50 (WEA 2) |
| 31 | 08:16 17:17 | | 07:12 20:04 | | 05:20 21:42 | 30 20:18 (WEA 2) | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | 500 | |
| astr.max.mögl.Beschattung | | | | | 592 | | 735 | |

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 | Schattenanfang (WEA mit erstem Schatten) | Schattende (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|--|---------------------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 44-NW - IP 44-NW
Annahmen für Schattenwurfberechnung

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

| | Juli | | August | | September | | Oktober | | November | | Dezember | |
|---------------------------|-------|-----|---------------|-------|-----------|---------------|---------|-------|----------|-------|----------|--|
| 1 | 05:16 | | 20:26 (WEA 2) | 05:53 | | 20:33 (WEA 2) | 06:43 | 07:32 | 07:26 | 08:18 | | |
| | 21:57 | 25 | 20:51 (WEA 2) | 21:25 | 18 | 20:51 (WEA 2) | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 05:17 | | 20:27 (WEA 2) | 05:54 | | 20:34 (WEA 2) | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 21:56 | 25 | 20:52 (WEA 2) | 21:23 | 14 | 20:48 (WEA 2) | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 05:18 | | 20:26 (WEA 2) | 05:56 | | 20:37 (WEA 2) | 06:46 | 07:36 | 07:30 | 08:20 | | |
| | 21:56 | 25 | 20:51 (WEA 2) | 21:21 | 9 | 20:46 (WEA 2) | 20:18 | 19:08 | 17:02 | 16:24 | | |
| 4 | 05:18 | | 20:26 (WEA 2) | 05:58 | | | 06:48 | 07:37 | 07:32 | 08:22 | | |
| | 21:56 | 26 | 20:52 (WEA 2) | 21:20 | | | 20:15 | 19:06 | 17:01 | 16:23 | | |
| 5 | 05:19 | | 20:26 (WEA 2) | 05:59 | | | 06:49 | 07:39 | 07:34 | 08:23 | | |
| | 21:55 | 27 | 20:53 (WEA 2) | 21:18 | | | 20:13 | 19:03 | 16:59 | 16:23 | | |
| 6 | 05:20 | | 20:26 (WEA 2) | 06:01 | | | 06:51 | 07:41 | 07:35 | 08:24 | | |
| | 21:55 | 27 | 20:53 (WEA 2) | 21:16 | | | 20:11 | 19:01 | 16:57 | 16:23 | | |
| 7 | 05:21 | | 20:26 (WEA 2) | 06:02 | | | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 21:54 | 28 | 20:54 (WEA 2) | 21:14 | | | 20:09 | 18:59 | 16:55 | 16:22 | | |
| 8 | 05:22 | | 20:25 (WEA 2) | 06:04 | | | 06:54 | 07:44 | 07:39 | 08:27 | | |
| | 21:53 | 28 | 20:53 (WEA 2) | 21:12 | | | 20:06 | 18:56 | 16:54 | 16:22 | | |
| 9 | 05:23 | | 20:25 (WEA 2) | 06:05 | | | 06:56 | 07:46 | 07:41 | 08:28 | | |
| | 21:53 | 29 | 20:54 (WEA 2) | 21:10 | | | 20:04 | 18:54 | 16:52 | 16:21 | | |
| 10 | 05:24 | | 20:25 (WEA 2) | 06:07 | | | 06:58 | 07:47 | 07:43 | 08:29 | | |
| | 21:52 | 29 | 20:54 (WEA 2) | 21:09 | | | 20:02 | 18:52 | 16:50 | 16:21 | | |
| 11 | 05:25 | | 20:25 (WEA 2) | 06:09 | | | 06:59 | 07:49 | 07:44 | 08:30 | | |
| | 21:51 | 30 | 20:55 (WEA 2) | 21:07 | | | 19:59 | 18:50 | 16:49 | 16:21 | | |
| 12 | 05:26 | | 20:25 (WEA 2) | 06:10 | | | 07:01 | 07:51 | 07:46 | 08:31 | | |
| | 21:50 | 30 | 20:55 (WEA 2) | 21:05 | | | 19:57 | 18:47 | 16:47 | 16:21 | | |
| 13 | 05:27 | | 20:25 (WEA 2) | 06:12 | | | 07:03 | 07:53 | 07:48 | 08:32 | | |
| | 21:49 | 30 | 20:55 (WEA 2) | 21:03 | | | 19:55 | 18:45 | 16:46 | 16:21 | | |
| 14 | 05:28 | | 20:26 (WEA 2) | 06:14 | | | 07:04 | 07:54 | 07:50 | 08:33 | | |
| | 21:48 | 30 | 20:56 (WEA 2) | 21:01 | | | 19:52 | 18:43 | 16:44 | 16:21 | | |
| 15 | 05:29 | | 20:26 (WEA 2) | 06:15 | | | 07:06 | 07:56 | 07:51 | 08:34 | | |
| | 21:48 | 30 | 20:56 (WEA 2) | 20:59 | | | 19:50 | 18:41 | 16:43 | 16:21 | | |
| 16 | 05:31 | | 20:26 (WEA 2) | 06:17 | | | 07:07 | 07:58 | 07:53 | 08:35 | | |
| | 21:46 | 30 | 20:56 (WEA 2) | 20:57 | | | 19:48 | 18:39 | 16:41 | 16:21 | | |
| 17 | 05:32 | | 20:26 (WEA 2) | 06:18 | | | 07:09 | 08:00 | 07:55 | 08:36 | | |
| | 21:45 | 30 | 20:56 (WEA 2) | 20:55 | | | 19:45 | 18:36 | 16:40 | 16:21 | | |
| 18 | 05:33 | | 20:26 (WEA 2) | 06:20 | | | 07:11 | 08:01 | 07:57 | 08:37 | | |
| | 21:44 | 30 | 20:56 (WEA 2) | 20:53 | | | 19:43 | 18:34 | 16:39 | 16:21 | | |
| 19 | 05:34 | | 20:25 (WEA 2) | 06:22 | | | 07:12 | 08:03 | 07:58 | 08:37 | | |
| | 21:43 | 31 | 20:56 (WEA 2) | 20:51 | | | 19:41 | 18:32 | 16:37 | 16:22 | | |
| 20 | 05:36 | | 20:26 (WEA 2) | 06:23 | | | 07:14 | 08:05 | 08:00 | 08:38 | | |
| | 21:42 | 31 | 20:57 (WEA 2) | 20:49 | | | 19:38 | 18:30 | 16:36 | 16:22 | | |
| 21 | 05:37 | | 20:26 (WEA 2) | 06:25 | | | 07:16 | 08:07 | 08:02 | 08:39 | | |
| | 21:41 | 31 | 20:57 (WEA 2) | 20:46 | | | 19:36 | 18:28 | 16:35 | 16:23 | | |
| 22 | 05:38 | | 20:26 (WEA 2) | 06:27 | | | 07:17 | 08:08 | 08:04 | 08:39 | | |
| | 21:39 | 30 | 20:56 (WEA 2) | 20:44 | | | 19:33 | 18:26 | 16:34 | 16:23 | | |
| 23 | 05:40 | | 20:26 (WEA 2) | 06:28 | | | 07:19 | 08:10 | 08:05 | 08:40 | | |
| | 21:38 | 30 | 20:56 (WEA 2) | 20:42 | | | 19:31 | 18:24 | 16:33 | 16:24 | | |
| 24 | 05:41 | | 20:27 (WEA 2) | 06:30 | | | 07:21 | 08:12 | 08:07 | 08:40 | | |
| | 21:37 | 30 | 20:57 (WEA 2) | 20:40 | | | 19:29 | 18:22 | 16:32 | 16:24 | | |
| 25 | 05:42 | | 20:27 (WEA 2) | 06:31 | | | 07:22 | 07:14 | 08:08 | 08:41 | | |
| | 21:35 | 29 | 20:56 (WEA 2) | 20:38 | | | 19:26 | 17:20 | 16:30 | 16:25 | | |
| 26 | 05:44 | | 20:27 (WEA 2) | 06:33 | | | 07:24 | 07:16 | 08:10 | 08:41 | | |
| | 21:34 | 28 | 20:55 (WEA 2) | 20:36 | | | 19:24 | 17:18 | 16:30 | 16:25 | | |
| 27 | 05:45 | | 20:28 (WEA 2) | 06:35 | | | 07:26 | 07:17 | 08:12 | 08:41 | | |
| | 21:32 | 27 | 20:55 (WEA 2) | 20:33 | | | 19:22 | 17:16 | 16:29 | 16:26 | | |
| 28 | 05:47 | | 20:29 (WEA 2) | 06:36 | | | 07:27 | 07:19 | 08:13 | 08:41 | | |
| | 21:31 | 25 | 20:54 (WEA 2) | 20:31 | | | 19:19 | 17:14 | 16:28 | 16:27 | | |
| 29 | 05:48 | | 20:30 (WEA 2) | 06:38 | | | 07:29 | 07:21 | 08:15 | 08:41 | | |
| | 21:29 | 24 | 20:54 (WEA 2) | 20:29 | | | 19:17 | 17:12 | 16:27 | 16:28 | | |
| 30 | 05:50 | | 20:30 (WEA 2) | 06:40 | | | 07:31 | 07:23 | 08:16 | 08:42 | | |
| | 21:28 | 23 | 20:53 (WEA 2) | 20:27 | | | 19:15 | 17:10 | 16:26 | 16:29 | | |
| 31 | 05:51 | | 20:31 (WEA 2) | 06:41 | | | | 07:25 | | 08:42 | | |
| | 21:26 | 20 | 20:51 (WEA 2) | 20:25 | | | | 17:08 | | 16:30 | | |
| Sonnenscheinstunden | 503 | | | 454 | | | 381 | 331 | 266 | 243 | | |
| astr.max.mögl.Beschattung | | 868 | | | 41 | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 45-NO - IP 45-NO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | | Juni |
|---------------------------|----------------|----------------|----------------|----------------|----------------|-------------------------------------|---|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 18:05 | 06:05 20:57 | | 05:19 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | | 22 20:15 (WEA 2) 05:18 20:15 (WEA 2) |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | | 21 20:36 (WEA 2) 05:18 20:17 (WEA 2) |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | | 20 20:37 (WEA 2) 05:17 20:17 (WEA 2) |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 20:23 (WEA 2) | 19 20:36 (WEA 2) 05:16 20:17 (WEA 2) |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 4 20:27 (WEA 2) 12 20:31 (WEA 2) | 18 20:35 (WEA 2) 05:15 20:19 (WEA 2) |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 15 20:18 (WEA 2) 20:33 (WEA 2) | 16 20:35 (WEA 2) 05:15 20:19 (WEA 2) |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 17 20:17 (WEA 2) 20:34 (WEA 2) | 15 20:34 (WEA 2) 05:14 20:20 (WEA 2) |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 19 20:16 (WEA 2) 20:35 (WEA 2) | 14 20:34 (WEA 2) 05:14 20:22 (WEA 2) |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 22 20:15 (WEA 2) 20:37 (WEA 2) | 12 20:34 (WEA 2) 05:13 20:22 (WEA 2) |
| 11 | 08:38 16:44 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | 05:47 21:13 | 23 20:14 (WEA 2) 20:37 (WEA 2) | 10 20:22 (WEA 2) 05:13 20:24 (WEA 2) |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 24 20:14 (WEA 2) 20:38 (WEA 2) | 8 20:32 (WEA 2) 05:13 20:25 (WEA 2) |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 26 20:12 (WEA 2) 20:38 (WEA 2) | 6 20:31 (WEA 2) 05:12 20:27 (WEA 2) |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 27 20:12 (WEA 2) 20:39 (WEA 2) | 3 20:30 (WEA 2) 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 28 20:11 (WEA 2) 20:39 (WEA 2) | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 29 20:10 (WEA 2) 20:39 (WEA 2) | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 30 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:56 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 30 20:09 (WEA 2) 20:39 (WEA 2) | 05:12 21:56 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 29 20:10 (WEA 2) 20:39 (WEA 2) | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 30 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 30 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 29 20:10 (WEA 2) 20:39 (WEA 2) | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 29 20:10 (WEA 2) 20:39 (WEA 2) | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 29 20:10 (WEA 2) 20:39 (WEA 2) | 05:13 21:57 |
| 25 | 08:25 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 28 20:11 (WEA 2) 20:39 (WEA 2) | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 28 20:11 (WEA 2) 20:39 (WEA 2) | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 26 20:12 (WEA 2) 20:38 (WEA 2) | 05:14 21:57 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 26 20:12 (WEA 2) 20:38 (WEA 2) | 05:14 21:57 |
| 29 | 08:19 17:14 | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 25 20:13 (WEA 2) 20:38 (WEA 2) | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 24 20:13 (WEA 2) 20:37 (WEA 2) | 5 20:29 (WEA 2) 21:57 20:34 (WEA 2) |
| 31 | 08:16 17:17 | | 07:12 20:04 | | 05:20 21:42 | 24 20:14 (WEA 2) 20:38 (WEA 2) | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | 500 |
| astr.max.mögl.Beschattung | | | | | 663 | | 189 |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 45-NO - IP 45-NO
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Juli | | August | | September | | Oktober | | November | | Dezember | |
|---------------------------|-------|-----|---------------|-------|-----------|---------------|---------|-------|----------|-------|----------|--|
| 1 | 05:16 | | 20:28 (WEA 2) | 05:53 | | 20:24 (WEA 2) | 06:43 | 07:32 | 07:26 | 08:18 | | |
| | 21:57 | 8 | 20:36 (WEA 2) | 21:25 | 24 | 20:48 (WEA 2) | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 05:17 | | 20:28 (WEA 2) | 05:54 | | 20:25 (WEA 2) | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 21:56 | 9 | 20:37 (WEA 2) | 21:23 | 22 | 20:47 (WEA 2) | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 05:18 | | 20:26 (WEA 2) | 05:56 | | 20:26 (WEA 2) | 06:46 | 07:36 | 07:30 | 08:20 | | |
| | 21:56 | 12 | 20:38 (WEA 2) | 21:21 | 21 | 20:47 (WEA 2) | 20:18 | 19:08 | 17:02 | 16:24 | | |
| 4 | 05:18 | | 20:26 (WEA 2) | 05:58 | | 20:26 (WEA 2) | 06:48 | 07:37 | 07:32 | 08:22 | | |
| | 21:56 | 13 | 20:39 (WEA 2) | 21:20 | 19 | 20:45 (WEA 2) | 20:15 | 19:06 | 17:01 | 16:23 | | |
| 5 | 05:19 | | 20:26 (WEA 2) | 05:59 | | 20:28 (WEA 2) | 06:49 | 07:39 | 07:34 | 08:23 | | |
| | 21:55 | 14 | 20:40 (WEA 2) | 21:18 | 16 | 20:44 (WEA 2) | 20:13 | 19:03 | 16:59 | 16:23 | | |
| 6 | 05:20 | | 20:25 (WEA 2) | 06:01 | | 20:28 (WEA 2) | 06:51 | 07:41 | 07:35 | 08:24 | | |
| | 21:55 | 16 | 20:41 (WEA 2) | 21:16 | 14 | 20:42 (WEA 2) | 20:11 | 19:01 | 16:57 | 16:23 | | |
| 7 | 05:21 | | 20:25 (WEA 2) | 06:02 | | 20:30 (WEA 2) | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 21:54 | 17 | 20:42 (WEA 2) | 21:14 | 10 | 20:40 (WEA 2) | 20:09 | 18:59 | 16:55 | 16:22 | | |
| 8 | 05:22 | | 20:24 (WEA 2) | 06:04 | | | 06:54 | 07:44 | 07:39 | 08:27 | | |
| | 21:53 | 18 | 20:42 (WEA 2) | 21:12 | | | 20:06 | 18:56 | 16:54 | 16:22 | | |
| 9 | 05:23 | | 20:23 (WEA 2) | 06:05 | | | 06:56 | 07:46 | 07:41 | 08:28 | | |
| | 21:53 | 20 | 20:43 (WEA 2) | 21:10 | | | 20:04 | 18:54 | 16:52 | 16:21 | | |
| 10 | 05:24 | | 20:23 (WEA 2) | 06:07 | | | 06:58 | 07:47 | 07:43 | 08:29 | | |
| | 21:52 | 21 | 20:44 (WEA 2) | 21:09 | | | 20:02 | 18:52 | 16:50 | 16:21 | | |
| 11 | 05:25 | | 20:22 (WEA 2) | 06:09 | | | 06:59 | 07:49 | 07:44 | 08:30 | | |
| | 21:51 | 22 | 20:44 (WEA 2) | 21:07 | | | 19:59 | 18:50 | 16:49 | 16:21 | | |
| 12 | 05:26 | | 20:22 (WEA 2) | 06:10 | | | 07:01 | 07:51 | 07:46 | 08:31 | | |
| | 21:50 | 23 | 20:45 (WEA 2) | 21:05 | | | 19:57 | 18:47 | 16:47 | 16:21 | | |
| 13 | 05:27 | | 20:22 (WEA 2) | 06:12 | | | 07:03 | 07:53 | 07:48 | 08:32 | | |
| | 21:49 | 23 | 20:45 (WEA 2) | 21:03 | | | 19:55 | 18:45 | 16:46 | 16:21 | | |
| 14 | 05:28 | | 20:22 (WEA 2) | 06:14 | | | 07:04 | 07:54 | 07:50 | 08:33 | | |
| | 21:48 | 25 | 20:47 (WEA 2) | 21:01 | | | 19:52 | 18:43 | 16:44 | 16:21 | | |
| 15 | 05:29 | | 20:22 (WEA 2) | 06:15 | | | 07:06 | 07:56 | 07:51 | 08:34 | | |
| | 21:48 | 25 | 20:47 (WEA 2) | 20:59 | | | 19:50 | 18:41 | 16:43 | 16:21 | | |
| 16 | 05:30 | | 20:21 (WEA 2) | 06:17 | | | 07:07 | 07:58 | 07:53 | 08:35 | | |
| | 21:46 | 27 | 20:48 (WEA 2) | 20:57 | | | 19:48 | 18:39 | 16:41 | 16:21 | | |
| 17 | 05:32 | | 20:21 (WEA 2) | 06:18 | | | 07:09 | 08:00 | 07:55 | 08:36 | | |
| | 21:45 | 27 | 20:48 (WEA 2) | 20:55 | | | 19:45 | 18:36 | 16:40 | 16:21 | | |
| 18 | 05:33 | | 20:21 (WEA 2) | 06:20 | | | 07:11 | 08:01 | 07:57 | 08:37 | | |
| | 21:44 | 27 | 20:48 (WEA 2) | 20:53 | | | 19:43 | 18:34 | 16:39 | 16:21 | | |
| 19 | 05:34 | | 20:20 (WEA 2) | 06:22 | | | 07:12 | 08:03 | 07:58 | 08:37 | | |
| | 21:43 | 28 | 20:48 (WEA 2) | 20:51 | | | 19:41 | 18:32 | 16:37 | 16:22 | | |
| 20 | 05:36 | | 20:21 (WEA 2) | 06:23 | | | 07:14 | 08:05 | 08:00 | 08:38 | | |
| | 21:42 | 29 | 20:50 (WEA 2) | 20:49 | | | 19:38 | 18:30 | 16:36 | 16:22 | | |
| 21 | 05:37 | | 20:20 (WEA 2) | 06:25 | | | 07:16 | 08:07 | 08:02 | 08:39 | | |
| | 21:41 | 30 | 20:50 (WEA 2) | 20:46 | | | 19:36 | 18:28 | 16:35 | 16:23 | | |
| 22 | 05:38 | | 20:20 (WEA 2) | 06:27 | | | 07:17 | 08:08 | 08:04 | 08:39 | | |
| | 21:39 | 30 | 20:50 (WEA 2) | 20:44 | | | 19:33 | 18:26 | 16:34 | 16:23 | | |
| 23 | 05:40 | | 20:20 (WEA 2) | 06:28 | | | 07:19 | 08:10 | 08:05 | 08:40 | | |
| | 21:38 | 29 | 20:49 (WEA 2) | 20:42 | | | 19:31 | 18:24 | 16:33 | 16:24 | | |
| 24 | 05:41 | | 20:20 (WEA 2) | 06:30 | | | 07:21 | 08:12 | 08:07 | 08:40 | | |
| | 21:37 | 30 | 20:50 (WEA 2) | 20:40 | | | 19:29 | 18:22 | 16:32 | 16:24 | | |
| 25 | 05:42 | | 20:20 (WEA 2) | 06:31 | | | 07:22 | 07:14 | 08:08 | 08:41 | | |
| | 21:35 | 30 | 20:50 (WEA 2) | 20:38 | | | 19:26 | 17:20 | 16:30 | 16:25 | | |
| 26 | 05:44 | | 20:20 (WEA 2) | 06:33 | | | 07:24 | 07:16 | 08:10 | 08:41 | | |
| | 21:34 | 29 | 20:49 (WEA 2) | 20:36 | | | 19:24 | 17:18 | 16:29 | 16:25 | | |
| 27 | 05:45 | | 20:21 (WEA 2) | 06:35 | | | 07:26 | 07:17 | 08:12 | 08:41 | | |
| | 21:32 | 29 | 20:50 (WEA 2) | 20:33 | | | 19:22 | 17:16 | 16:29 | 16:26 | | |
| 28 | 05:47 | | 20:21 (WEA 2) | 06:36 | | | 07:27 | 07:19 | 08:13 | 08:41 | | |
| | 21:31 | 28 | 20:49 (WEA 2) | 20:31 | | | 19:19 | 17:14 | 16:28 | 16:27 | | |
| 29 | 05:48 | | 20:22 (WEA 2) | 06:38 | | | 07:29 | 07:21 | 08:15 | 08:41 | | |
| | 21:29 | 28 | 20:50 (WEA 2) | 20:29 | | | 19:17 | 17:12 | 16:27 | 16:28 | | |
| 30 | 05:50 | | 20:23 (WEA 2) | 06:40 | | | 07:31 | 07:23 | 08:16 | 08:42 | | |
| | 21:28 | 26 | 20:49 (WEA 2) | 20:27 | | | 19:15 | 17:10 | 16:26 | 16:29 | | |
| 31 | 05:51 | | 20:23 (WEA 2) | 06:41 | | | | 07:25 | | 08:42 | | |
| | 21:26 | 25 | 20:48 (WEA 2) | 20:25 | | | | 17:08 | | 16:30 | | |
| Sonnenscheinstunden | 503 | | | 454 | | | 381 | 331 | 266 | 243 | | |
| astr.max.mögl.Beschattung | | 718 | | | 126 | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 45-NW - IP 45-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | | Juni | |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----|--------------------------------|--------------------------------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | | 05:19 21:43 | 23 20:15 (WEA 2) 20:38 (WEA 2) |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | | 05:18 21:44 | 23 20:15 (WEA 2) 20:38 (WEA 2) |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | | 05:18 21:45 | 23 20:16 (WEA 2) 22 20:38 (WEA 2) |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | | 05:17 21:46 | 20 20:17 (WEA 2) 20 20:37 (WEA 2) |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | | 05:16 21:47 | 20 20:17 (WEA 2) 20 20:37 (WEA 2) |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 10 | 20:20 (WEA 2) 20:30 (WEA 2) | 05:15 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 15 | 20:18 (WEA 2) 20:33 (WEA 2) | 05:15 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 18 | 20:16 (WEA 2) 20:34 (WEA 2) | 05:14 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 21 | 20:14 (WEA 2) 20:35 (WEA 2) | 05:14 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 23 | 20:14 (WEA 2) 20:37 (WEA 2) | 05:13 21:51 |
| 11 | 08:38 16:44 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | 05:47 21:13 | 25 | 20:12 (WEA 2) 20:37 (WEA 2) | 05:13 21:52 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 26 | 20:12 (WEA 2) 20:38 (WEA 2) | 05:13 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 27 | 20:11 (WEA 2) 20:38 (WEA 2) | 05:12 21:53 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 28 | 20:11 (WEA 2) 20:39 (WEA 2) | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 29 | 20:10 (WEA 2) 20:39 (WEA 2) | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 30 | 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 30 | 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:56 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 30 | 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:56 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 30 | 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 30 | 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 30 | 20:11 (WEA 2) 20:41 (WEA 2) | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 30 | 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 30 | 20:10 (WEA 2) 20:40 (WEA 2) | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 29 | 20:11 (WEA 2) 20:40 (WEA 2) | 05:13 21:57 |
| 25 | 08:25 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 29 | 20:11 (WEA 2) 20:40 (WEA 2) | 05:13 21:58 |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 29 | 20:11 (WEA 2) 20:40 (WEA 2) | 05:13 21:58 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 27 | 20:12 (WEA 2) 20:39 (WEA 2) | 05:14 21:57 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 27 | 20:12 (WEA 2) 20:39 (WEA 2) | 05:14 21:57 |
| 29 | 08:19 17:14 | | 06:17 20:00 | 06:09 20:53 | 05:22 21:39 | 26 | 20:13 (WEA 2) 20:39 (WEA 2) | 05:15 21:57 |
| 30 | 08:18 17:15 | | 06:15 20:02 | 06:07 20:55 | 05:21 21:40 | 25 | 20:13 (WEA 2) 20:38 (WEA 2) | 05:16 21:57 |
| 31 | 08:16 17:17 | | 06:12 20:04 | | 05:20 21:42 | 25 | 20:14 (WEA 2) 20:39 (WEA 2) | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | 500 | |
| astr.max.mögl.Beschattung | | | | | 679 | | 279 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 45-NW - IP 45-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlungsrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| Juli | | August | | September | | Oktober | | November | | Dezember | |
|---------------------------|-------|---------------|---------------|-----------|---------------|---------|-------|----------|-------|----------|--|
| 1 | 05:16 | 20:27 (WEA 2) | 05:53 | 25 | 20:23 (WEA 2) | 06:43 | 07:32 | 07:26 | 08:18 | | |
| | 21:57 | 11 | 20:38 (WEA 2) | 21:25 | 20:48 (WEA 2) | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 05:17 | 20:27 (WEA 2) | 05:54 | 24 | 20:23 (WEA 2) | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 21:56 | 13 | 20:40 (WEA 2) | 21:23 | 20:47 (WEA 2) | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 05:18 | 20:25 (WEA 2) | 05:56 | 23 | 20:24 (WEA 2) | 06:46 | 07:36 | 07:30 | 08:20 | | |
| | 21:56 | 15 | 20:40 (WEA 2) | 21:21 | 20:47 (WEA 2) | 20:18 | 19:08 | 17:02 | 16:24 | | |
| 4 | 05:18 | 20:25 (WEA 2) | 05:58 | 20 | 20:25 (WEA 2) | 06:48 | 07:37 | 07:32 | 08:22 | | |
| | 21:56 | 16 | 20:41 (WEA 2) | 21:20 | 20:45 (WEA 2) | 20:15 | 19:06 | 17:01 | 16:23 | | |
| 5 | 05:19 | 20:25 (WEA 2) | 05:59 | 17 | 20:27 (WEA 2) | 06:49 | 07:39 | 07:34 | 08:23 | | |
| | 21:55 | 17 | 20:42 (WEA 2) | 21:18 | 20:44 (WEA 2) | 20:13 | 19:03 | 16:59 | 16:23 | | |
| 6 | 05:20 | 20:25 (WEA 2) | 06:01 | 14 | 20:28 (WEA 2) | 06:51 | 07:41 | 07:35 | 08:24 | | |
| | 21:55 | 18 | 20:43 (WEA 2) | 21:16 | 20:42 (WEA 2) | 20:11 | 19:01 | 16:57 | 16:23 | | |
| 7 | 05:21 | 20:25 (WEA 2) | 06:02 | 7 | 20:32 (WEA 2) | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 21:54 | 19 | 20:44 (WEA 2) | 21:14 | 20:39 (WEA 2) | 20:09 | 18:59 | 16:55 | 16:22 | | |
| 8 | 05:22 | 20:23 (WEA 2) | 06:04 | | | 06:54 | 07:44 | 07:39 | 08:27 | | |
| | 21:53 | 20 | 20:43 (WEA 2) | 21:12 | | 20:06 | 18:56 | 16:54 | 16:22 | | |
| 9 | 05:23 | 20:23 (WEA 2) | 06:05 | | | 06:56 | 07:46 | 07:41 | 08:28 | | |
| | 21:53 | 21 | 20:44 (WEA 2) | 21:10 | | 20:04 | 18:54 | 16:52 | 16:21 | | |
| 10 | 05:24 | 20:23 (WEA 2) | 06:07 | | | 06:58 | 07:47 | 07:43 | 08:29 | | |
| | 21:52 | 22 | 20:45 (WEA 2) | 21:09 | | 20:02 | 18:52 | 16:50 | 16:21 | | |
| 11 | 05:25 | 20:22 (WEA 2) | 06:09 | | | 06:59 | 07:49 | 07:44 | 08:30 | | |
| | 21:51 | 24 | 20:46 (WEA 2) | 21:07 | | 19:59 | 18:50 | 16:49 | 16:21 | | |
| 12 | 05:26 | 20:22 (WEA 2) | 06:10 | | | 07:01 | 07:51 | 07:46 | 08:31 | | |
| | 21:50 | 24 | 20:46 (WEA 2) | 21:05 | | 19:57 | 18:47 | 16:47 | 16:21 | | |
| 13 | 05:27 | 20:22 (WEA 2) | 06:12 | | | 07:03 | 07:53 | 07:48 | 08:32 | | |
| | 21:49 | 25 | 20:47 (WEA 2) | 21:03 | | 19:55 | 18:45 | 16:46 | 16:21 | | |
| 14 | 05:28 | 20:22 (WEA 2) | 06:14 | | | 07:04 | 07:54 | 07:50 | 08:33 | | |
| | 21:48 | 26 | 20:48 (WEA 2) | 21:01 | | 19:52 | 18:43 | 16:44 | 16:21 | | |
| 15 | 05:29 | 20:22 (WEA 2) | 06:15 | | | 07:06 | 07:56 | 07:51 | 08:34 | | |
| | 21:48 | 26 | 20:48 (WEA 2) | 20:59 | | 19:50 | 18:41 | 16:43 | 16:21 | | |
| 16 | 05:30 | 20:22 (WEA 2) | 06:17 | | | 07:07 | 07:58 | 07:53 | 08:35 | | |
| | 21:46 | 27 | 20:49 (WEA 2) | 20:57 | | 19:48 | 18:39 | 16:41 | 16:21 | | |
| 17 | 05:32 | 20:21 (WEA 2) | 06:18 | | | 07:09 | 08:00 | 07:55 | 08:36 | | |
| | 21:45 | 28 | 20:49 (WEA 2) | 20:55 | | 19:45 | 18:36 | 16:40 | 16:21 | | |
| 18 | 05:33 | 20:21 (WEA 2) | 06:20 | | | 07:11 | 08:01 | 07:57 | 08:37 | | |
| | 21:44 | 28 | 20:49 (WEA 2) | 20:53 | | 19:43 | 18:34 | 16:39 | 16:21 | | |
| 19 | 05:34 | 20:20 (WEA 2) | 06:22 | | | 07:12 | 08:03 | 07:58 | 08:37 | | |
| | 21:43 | 29 | 20:49 (WEA 2) | 20:51 | | 19:41 | 18:32 | 16:37 | 16:22 | | |
| 20 | 05:36 | 20:21 (WEA 2) | 06:23 | | | 07:14 | 08:05 | 08:00 | 08:38 | | |
| | 21:42 | 29 | 20:50 (WEA 2) | 20:49 | | 19:38 | 18:30 | 16:36 | 16:22 | | |
| 21 | 05:37 | 20:21 (WEA 2) | 06:25 | | | 07:16 | 08:07 | 08:02 | 08:39 | | |
| | 21:41 | 29 | 20:50 (WEA 2) | 20:46 | | 19:36 | 18:28 | 16:35 | 16:23 | | |
| 22 | 05:38 | 20:20 (WEA 2) | 06:27 | | | 07:17 | 08:08 | 08:04 | 08:39 | | |
| | 21:39 | 30 | 20:50 (WEA 2) | 20:44 | | 19:33 | 18:26 | 16:34 | 16:23 | | |
| 23 | 05:40 | 20:20 (WEA 2) | 06:28 | | | 07:19 | 08:10 | 08:05 | 08:40 | | |
| | 21:38 | 30 | 20:50 (WEA 2) | 20:42 | | 19:31 | 18:24 | 16:33 | 16:24 | | |
| 24 | 05:41 | 20:21 (WEA 2) | 06:30 | | | 07:21 | 08:12 | 08:07 | 08:40 | | |
| | 21:37 | 30 | 20:51 (WEA 2) | 20:40 | | 19:29 | 18:22 | 16:32 | 16:24 | | |
| 25 | 05:42 | 20:20 (WEA 2) | 06:31 | | | 07:22 | 07:14 | 08:08 | 08:41 | | |
| | 21:35 | 31 | 20:51 (WEA 2) | 20:38 | | 19:26 | 17:20 | 16:30 | 16:25 | | |
| 26 | 05:44 | 20:20 (WEA 2) | 06:33 | | | 07:24 | 07:16 | 08:10 | 08:41 | | |
| | 21:34 | 30 | 20:50 (WEA 2) | 20:36 | | 19:24 | 17:18 | 16:29 | 16:25 | | |
| 27 | 05:45 | 20:21 (WEA 2) | 06:35 | | | 07:26 | 07:17 | 08:12 | 08:41 | | |
| | 21:32 | 30 | 20:51 (WEA 2) | 20:33 | | 19:22 | 17:16 | 16:29 | 16:26 | | |
| 28 | 05:47 | 20:21 (WEA 2) | 06:36 | | | 07:27 | 07:19 | 08:13 | 08:41 | | |
| | 21:31 | 29 | 20:50 (WEA 2) | 20:31 | | 19:19 | 17:14 | 16:28 | 16:27 | | |
| 29 | 05:48 | 20:22 (WEA 2) | 06:38 | | | 07:29 | 07:21 | 08:15 | 08:41 | | |
| | 21:29 | 28 | 20:50 (WEA 2) | 20:29 | | 19:17 | 17:12 | 16:27 | 16:28 | | |
| 30 | 05:50 | 20:22 (WEA 2) | 06:40 | | | 07:31 | 07:23 | 08:16 | 08:42 | | |
| | 21:28 | 27 | 20:49 (WEA 2) | 20:27 | | 19:15 | 17:10 | 16:26 | 16:29 | | |
| 31 | 05:51 | 20:22 (WEA 2) | 06:41 | | | | 07:25 | | 08:42 | | |
| | 21:26 | 27 | 20:49 (WEA 2) | 20:25 | | | 17:08 | | 16:30 | | |
| Sonnenscheinstunden | | 503 | 454 | 381 | 331 | 266 | 243 | | | | |
| astr.max.mögl.Beschattung | | 759 | 130 | | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 46-N - IP 46-N
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | | Mai | Juni |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|------------------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | | 06:05 20:57 | 20:07 (WEA 2) 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | | 06:03 20:58 | 20:06 (WEA 2) 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | | 06:01 21:00 | 20:06 (WEA 2) 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | | 05:59 21:02 | 20:05 (WEA 2) 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | | 05:57 21:03 | 20:04 (WEA 2) 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | | 05:55 21:05 | 20:03 (WEA 2) 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | | 05:54 21:07 | 20:04 (WEA 2) 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | | 05:52 21:08 | 20:03 (WEA 2) 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | | 05:50 21:10 | 20:03 (WEA 2) 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | | 05:48 21:11 | 20:04 (WEA 2) 21:51 |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | | 05:47 21:13 | 20:03 (WEA 2) 21:52 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | | 05:45 21:15 | 20:04 (WEA 2) 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | | 05:43 21:16 | 20:04 (WEA 2) 21:53 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | | 05:42 21:18 | 20:05 (WEA 2) 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | | 05:40 21:19 | 20:05 (WEA 2) 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | | 05:39 21:21 | 20:06 (WEA 2) 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | | 05:37 21:22 | 20:07 (WEA 2) 21:56 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | | 05:36 21:24 | 20:08 (WEA 2) 21:56 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | | 05:34 21:25 | 20:09 (WEA 2) 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | | 05:33 21:27 | 20:11 (WEA 2) 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | | 05:31 21:28 | 20:14 (WEA 2) 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | | 05:30 21:30 | 20:19 (WEA 2) 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | | 05:29 21:31 | 20:23 (WEA 2) 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | | 05:28 21:33 | 20:26 (WEA 2) 21:57 |
| 25 | 08:24 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | | 05:26 21:34 | 20:29 (WEA 2) 21:57 |
| 26 | 08:23 17:08 | 07:27 18:06 | 06:24 18:55 | 06:15 20:48 | | 05:25 21:35 | 20:32 (WEA 2) 21:57 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | | 05:24 21:37 | 20:35 (WEA 2) 21:57 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 6 | 20:15 (WEA 2) 20:21 (WEA 2) | 05:23 21:38 |
| 29 | 08:19 17:14 | | 07:17 20:00 | 06:09 20:53 | 13 | 20:11 (WEA 2) 20:24 (WEA 2) | 05:22 21:39 |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 16 | 20:09 (WEA 2) 20:25 (WEA 2) | 05:21 21:40 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | | | 05:20 21:41 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | | 486 | 500 |
| astr.max.mögl.Beschattung | | | | 35 | | 446 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 46-N - IP 46-N
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|--------------------------------|----------------|----------------|----------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 20:14 (WEA 2) | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 20:14 (WEA 2) | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 20:14 (WEA 2) | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 20:13 (WEA 2) | 06:48 20:15 | 07:37 19:06 | 07:32 17:01 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 20:14 (WEA 2) | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 20:13 (WEA 2) | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 08:24 16:23 |
| 7 | 05:21 21:54 | 06:02 21:14 | 20:14 (WEA 2) | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 20:14 (WEA 2) | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 20:15 (WEA 2) | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 20:15 (WEA 2) | 06:58 20:02 | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 20:16 (WEA 2) | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 20:16 (WEA 2) | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 20:18 (WEA 2) | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:48 | 06:13 21:01 | 20:19 (WEA 2) | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:47 | 06:15 20:59 | 20:24 (WEA 2) | 07:06 19:50 | 07:56 18:41 | 07:51 16:43 | 08:34 16:21 |
| 16 | 05:30 21:46 | 06:17 20:57 | 20:26 (WEA 2) | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:48 | | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 08:39 16:23 |
| 22 | 05:38 21:39 | 06:27 20:44 | | 07:17 19:33 | 08:08 18:26 | 08:03 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 20:22 (WEA 2) 20:30 (WEA 2) | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 08:40 16:24 |
| 24 | 05:41 21:37 | 20:21 (WEA 2) 20:33 (WEA 2) | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 20:19 (WEA 2) 20:34 (WEA 2) | 06:31 20:38 | 07:22 19:26 | 07:14 17:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 20:18 (WEA 2) 20:35 (WEA 2) | 06:33 20:36 | 07:24 19:24 | 07:16 17:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 20:17 (WEA 2) 20:37 (WEA 2) | 06:35 20:33 | 07:26 19:22 | 07:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 20:16 (WEA 2) 20:37 (WEA 2) | 06:36 20:31 | 07:27 19:19 | 07:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 20:15 (WEA 2) 20:37 (WEA 2) | 06:38 20:29 | 07:29 19:17 | 07:21 17:12 | 08:15 16:27 | 08:41 16:28 |
| 30 | 05:50 21:28 | 20:15 (WEA 2) 20:38 (WEA 2) | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 20:14 (WEA 2) 20:38 (WEA 2) | 06:41 20:24 | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | 162 | 317 | | | | | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 46-W - IP 46-W
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | | Mai | Juni |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|------------------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | | 06:05 20:57 | 20:08 (WEA 2) 21:43 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | | 06:03 20:58 | 20:07 (WEA 2) 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | | 06:01 21:00 | 20:07 (WEA 2) 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | | 05:59 21:02 | 20:06 (WEA 2) 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | | 05:57 21:03 | 20:05 (WEA 2) 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | | 05:55 21:05 | 20:04 (WEA 2) 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | | 05:54 21:07 | 20:04 (WEA 2) 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | | 05:52 21:08 | 20:04 (WEA 2) 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | | 05:50 21:10 | 20:03 (WEA 2) 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | | 05:48 21:11 | 20:04 (WEA 2) 21:51 |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | | 05:47 21:13 | 20:04 (WEA 2) 21:52 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | | 05:45 21:15 | 20:04 (WEA 2) 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | | 05:43 21:16 | 20:04 (WEA 2) 21:53 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | | 05:42 21:18 | 20:05 (WEA 2) 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | | 05:40 21:19 | 20:05 (WEA 2) 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | | 05:39 21:21 | 20:06 (WEA 2) 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | | 05:37 21:22 | 20:07 (WEA 2) 21:56 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | | 05:36 21:24 | 20:08 (WEA 2) 21:56 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | | 05:34 21:25 | 20:09 (WEA 2) 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | | 05:33 21:27 | 20:11 (WEA 2) 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | | 05:31 21:28 | 20:13 (WEA 2) 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | | 05:30 21:30 | 20:15 (WEA 2) 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | | 05:29 21:31 | 20:19 (WEA 2) 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | | 05:28 21:33 | 20:08 (WEA 2) 21:57 |
| 25 | 08:25 17:08 | 07:29 18:06 | 06:26 18:55 | 06:17 20:48 | | 05:26 21:35 | 20:09 (WEA 2) 21:57 |
| 26 | 08:23 17:10 | 07:27 18:07 | 06:24 18:57 | 06:15 20:50 | | 05:25 21:37 | 20:11 (WEA 2) 21:57 |
| 27 | 08:22 17:12 | 07:25 18:09 | 06:21 18:58 | 06:13 20:51 | | 05:24 21:38 | 20:13 (WEA 2) 21:57 |
| 28 | 08:20 17:14 | 07:23 18:09 | 06:19 18:59 | 06:11 20:52 | | 05:23 21:39 | 20:15 (WEA 2) 21:57 |
| 29 | 08:19 17:15 | | 06:17 19:00 | 06:09 20:53 | 10 | 20:13 (WEA 2) 20:23 (WEA 2) | 05:22 21:39 |
| 30 | 08:18 17:15 | | 06:15 19:01 | 06:07 20:55 | 15 | 20:10 (WEA 2) 20:25 (WEA 2) | 05:21 21:40 |
| 31 | 08:16 17:17 | | 06:12 19:02 | 06:04 20:56 | | 05:20 21:41 | 21:57 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | | 486 | 500 |
| astr.max.mögl.Beschattung | | | | 25 | | 464 | |

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

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

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 46-W - IP 46-W
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|-----------------------------------|------------------|----------------|----------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 25 20:15 (WEA 2) | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 26 20:14 (WEA 2) | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 27 20:14 (WEA 2) | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 26 20:14 (WEA 2) | 06:48 20:15 | 07:37 19:06 | 07:32 17:01 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 26 20:14 (WEA 2) | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 26 20:14 (WEA 2) | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 08:24 16:23 |
| 7 | 05:21 21:54 | 06:02 21:14 | 25 20:15 (WEA 2) | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 24 20:15 (WEA 2) | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 24 20:15 (WEA 2) | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 21 20:16 (WEA 2) | 06:58 20:02 | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 20 20:17 (WEA 2) | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 18 20:17 (WEA 2) | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 14 20:19 (WEA 2) | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:48 | 06:14 21:01 | 9 20:21 (WEA 2) | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:47 | 06:15 20:59 | 20:30 (WEA 2) | 07:06 19:50 | 07:56 18:41 | 07:51 16:43 | 08:34 16:21 |
| 16 | 05:30 21:46 | 06:17 20:57 | | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:48 | | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 08:39 16:23 |
| 22 | 05:38 21:39 | 20:23 (WEA 2) 20:31 (WEA 2) | 06:27 20:44 | 07:17 19:33 | 08:08 18:26 | 08:03 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 12 20:21 (WEA 2) 20:33 (WEA 2) | 06:28 20:42 | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 08:40 16:24 |
| 24 | 05:41 21:37 | 15 20:20 (WEA 2) 20:35 (WEA 2) | 06:30 20:40 | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 17 20:19 (WEA 2) 20:36 (WEA 2) | 06:31 20:38 | 07:22 19:26 | 07:14 17:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 19 20:18 (WEA 2) 20:37 (WEA 2) | 06:33 20:36 | 07:24 19:24 | 07:16 17:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 21 20:17 (WEA 2) 20:38 (WEA 2) | 06:35 20:33 | 07:26 19:22 | 07:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 22 20:16 (WEA 2) 20:38 (WEA 2) | 06:36 20:31 | 07:27 19:19 | 07:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 23 20:15 (WEA 2) 20:38 (WEA 2) | 06:38 20:29 | 07:29 19:17 | 07:21 17:12 | 08:15 16:27 | 08:41 16:28 |
| 30 | 05:50 21:28 | 25 20:15 (WEA 2) 20:40 (WEA 2) | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 24 20:15 (WEA 2) 20:39 (WEA 2) | 06:41 20:24 | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | 311 | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | 186 | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 47-NW - IP 47-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 | 05:17 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:00 | 08:22 16:23 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 08:24 16:22 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 | 05:23 21:53 | 06:05 21:10 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:53 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 | 05:28 21:48 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 08:35 16:49 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 | 05:29 21:47 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:51 16:43 | 08:34 16:21 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 | 05:30 21:46 | 06:17 20:57 | 19:55 (WEA 2) 20:01 (WEA 2) | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 | 05:32 21:45 | 06:18 20:55 | 19:52 (WEA 2) 20:04 (WEA 2) | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 | 05:33 21:44 | 06:20 20:53 | 19:50 (WEA 2) 20:05 (WEA 2) | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 | 05:34 21:43 | 06:22 20:51 | 19:49 (WEA 2) 20:06 (WEA 2) | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 | 05:36 21:42 | 06:23 20:48 | 19:47 (WEA 2) 20:06 (WEA 2) | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 | 05:37 21:41 | 06:25 20:46 | 19:47 (WEA 2) 20:07 (WEA 2) | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:29 | 05:12 21:57 | 05:38 21:39 | 06:27 20:44 | 19:45 (WEA 2) 20:07 (WEA 2) | 07:17 19:33 | 08:08 18:26 | 08:03 16:34 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 | 05:40 21:38 | 06:28 20:42 | 19:45 (WEA 2) 20:07 (WEA 2) | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:57 | 05:41 21:37 | 06:30 20:40 | 19:45 (WEA 2) 20:07 (WEA 2) | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 |
| 25 | 08:24 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:57 | 05:42 21:35 | 06:31 20:38 | 19:45 (WEA 2) 20:06 (WEA 2) | 07:22 19:26 | 07:14 17:20 | 08:08 16:30 |
| 26 | 08:23 17:08 | 07:27 18:05 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:57 | 05:44 21:34 | 06:33 20:36 | 19:45 (WEA 2) 20:06 (WEA 2) | 07:24 19:24 | 07:16 17:18 | 08:10 16:29 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:57 | 05:45 21:32 | 06:35 20:33 | 19:45 (WEA 2) 20:05 (WEA 2) | 07:26 19:22 | 07:17 17:16 | 08:12 16:29 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 05:14 21:57 | 05:47 21:31 | 06:36 20:31 | 19:46 (WEA 2) 20:04 (WEA 2) | 07:27 19:19 | 07:19 17:14 | 08:13 16:28 |
| 29 | 08:19 17:13 | 07:22 18:00 | 06:17 18:59 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 | 05:48 21:29 | 06:38 20:29 | 19:46 (WEA 2) 20:01 (WEA 2) | 07:29 19:17 | 07:21 17:12 | 08:15 16:27 |
| 30 | 08:18 17:15 | 07:21 18:02 | 06:15 18:57 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 | 05:50 21:28 | 06:40 20:27 | 19:47 (WEA 2) 19:59 (WEA 2) | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 |
| 31 | 08:16 17:17 | 07:19 18:04 | 06:12 18:52 | 06:04 20:57 | 05:20 21:41 | 05:16 21:57 | 05:51 21:26 | 06:41 20:24 | 19:50 (WEA 2) 19:58 (WEA 2) | 07:25 17:08 | 07:25 16:58 | 08:16 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 266 | | | | 270 | | | | |

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) | Schattendecke (WEA mit letztem Schatten) |
|--------------|-----------------------|-------------------------|----------------------|-------------------|--|--|
|--------------|-----------------------|-------------------------|----------------------|-------------------|--|--|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 48-NW - IP 48-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------------------|--------------------------------|----------------|----------------|-----|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 | |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 | |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 | |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:00 | 08:22 16:23 | |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 | |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 08:24 16:22 | |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 | |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 | |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 | 05:23 21:53 | 06:05 21:10 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 | |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 | |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 | |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 | |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:53 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 | |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 | 05:28 21:48 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 | |
| 15 | 08:35 16:49 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 | 05:29 21:47 | 06:15 20:59 | 19:57 (WEA 2) 20:02 (WEA 2) | 07:06 19:50 | 07:56 18:41 | 08:34 16:43 | |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 | 05:30 21:46 | 06:17 20:57 | 5 11 | 20:04 (WEA 2) 19:52 (WEA 2) | 07:07 19:48 | 07:58 18:39 | |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 | 05:32 21:45 | 06:18 20:55 | 14 | 20:06 (WEA 2) 19:50 (WEA 2) | 07:09 07:11 | 08:00 18:36 | |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 | 05:33 21:44 | 06:20 20:53 | 17 | 20:07 (WEA 2) 19:49 (WEA 2) | 07:11 07:12 | 08:01 18:34 | |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 | 05:34 21:43 | 06:22 20:51 | 19 | 20:08 (WEA 2) 19:47 (WEA 2) | 07:12 07:14 | 08:03 18:32 | |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 | 05:36 21:42 | 06:23 20:48 | 21 | 20:08 (WEA 2) 19:47 (WEA 2) | 07:14 07:16 | 08:05 18:30 | |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 | 05:37 21:41 | 06:25 20:46 | 22 | 20:09 (WEA 2) 19:46 (WEA 2) | 07:16 07:17 | 08:07 18:28 | |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 | 05:38 21:39 | 06:27 20:44 | 22 | 20:08 (WEA 2) 19:46 (WEA 2) | 07:17 07:19 | 08:08 18:26 | |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 | 05:40 21:38 | 06:28 20:42 | 22 | 20:08 (WEA 2) 19:46 (WEA 2) | 07:19 07:21 | 08:10 18:24 | |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:57 | 05:41 21:37 | 06:30 20:40 | 22 | 20:08 (WEA 2) 19:46 (WEA 2) | 07:21 07:22 | 08:12 18:22 | |
| 25 | 08:24 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:57 | 05:42 21:35 | 06:31 20:38 | 21 | 20:07 (WEA 2) 19:46 (WEA 2) | 07:22 07:24 | 08:14 18:20 | |
| 26 | 08:23 17:08 | 07:27 18:05 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:57 | 05:44 21:34 | 06:33 20:36 | 21 | 20:07 (WEA 2) 19:46 (WEA 2) | 07:24 07:26 | 08:10 18:18 | |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:57 | 05:45 21:32 | 06:35 20:33 | 20 | 20:06 (WEA 2) 19:47 (WEA 2) | 07:26 07:27 | 08:12 18:16 | |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 05:14 21:57 | 05:47 21:31 | 06:36 20:31 | 17 | 20:04 (WEA 2) 19:48 (WEA 2) | 07:27 07:29 | 08:13 18:15 | |
| 29 | 08:19 17:13 | | 07:17 20:00 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 | 05:48 21:29 | 06:38 20:29 | 13 | 20:01 (WEA 2) 19:50 (WEA 2) | 07:29 07:31 | 08:15 18:16 | |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 | 05:50 21:28 | 06:40 20:27 | 9 | 19:59 (WEA 2) | 07:31 07:31 | 08:16 18:16 | |
| 31 | 08:16 17:17 | | 07:12 20:04 | | 05:20 21:41 | | 05:51 21:26 | 06:41 20:24 | | | 07:25 17:08 | 08:16 16:26 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 276 | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 275 | | | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 49-NW - IP 49-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinfallrichtung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | 06:05 20:57 | 05:19 21:43 | 05:16 21:57 | 05:53 21:25 | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 08:42 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | 06:03 20:58 | 05:18 21:44 | 05:17 21:56 | 05:54 21:23 | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | 06:01 21:00 | 05:18 21:45 | 05:18 21:56 | 05:56 21:21 | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | 05:59 21:02 | 05:17 21:46 | 05:18 21:56 | 05:57 21:20 | 06:48 20:15 | 07:37 19:06 | 07:32 17:00 | 08:22 16:23 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | 05:57 21:03 | 05:16 21:47 | 05:19 21:55 | 05:59 21:18 | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | 05:55 21:05 | 05:15 21:48 | 05:20 21:55 | 06:01 21:16 | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 08:24 16:22 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | 05:54 21:07 | 05:15 21:49 | 05:21 21:54 | 06:02 21:14 | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | 05:52 21:08 | 05:14 21:50 | 05:22 21:53 | 06:04 21:12 | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | 05:50 21:10 | 05:14 21:51 | 05:23 21:53 | 06:05 21:10 | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | 05:48 21:11 | 05:13 21:51 | 05:24 21:52 | 06:07 21:09 | 06:58 20:02 | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | 05:47 21:13 | 05:13 21:52 | 05:25 21:51 | 06:09 21:07 | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | 05:45 21:15 | 05:13 21:53 | 05:26 21:50 | 06:10 21:05 | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | 05:43 21:16 | 05:12 21:53 | 05:27 21:49 | 06:12 21:03 | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | 05:42 21:18 | 05:12 21:54 | 05:28 21:48 | 06:13 21:01 | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | 05:40 21:19 | 05:12 21:55 | 05:29 21:47 | 06:15 20:59 | 07:06 19:50 | 07:56 18:41 | 07:51 16:43 | 08:34 16:21 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | 05:39 21:21 | 05:12 21:55 | 05:30 21:46 | 06:17 20:57 | 07:07 19:53 | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | 05:37 21:22 | 05:12 21:56 | 05:32 21:45 | 06:18 20:55 | 07:09 19:51 | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | 05:36 21:24 | 05:12 21:56 | 05:33 21:44 | 06:20 20:53 | 07:11 19:50 | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | 05:34 21:25 | 05:12 21:56 | 05:34 21:43 | 06:22 20:51 | 07:12 19:50 | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | 05:33 21:27 | 05:12 21:57 | 05:36 21:42 | 06:23 20:48 | 07:14 19:49 | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | 05:31 21:28 | 05:12 21:57 | 05:37 21:41 | 06:25 20:46 | 07:16 19:48 | 08:07 18:28 | 08:02 16:35 | 08:39 16:22 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | 05:30 21:30 | 05:12 21:57 | 05:38 21:39 | 06:27 20:44 | 07:17 19:48 | 08:08 18:26 | 08:03 16:34 | 08:39 16:23 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | 05:29 21:31 | 05:12 21:57 | 05:40 21:38 | 06:28 20:42 | 07:19 19:49 | 08:10 18:24 | 08:05 16:33 | 08:40 16:23 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | 05:28 21:33 | 05:13 21:57 | 05:41 21:37 | 06:30 20:40 | 07:21 19:49 | 08:12 18:22 | 08:07 16:31 | 08:40 16:24 |
| 25 | 08:24 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | 05:26 21:34 | 05:13 21:57 | 05:42 21:35 | 06:31 20:38 | 07:22 19:49 | 07:14 18:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 08:23 17:08 | 07:27 18:05 | 06:24 18:55 | 06:15 20:48 | 05:25 21:35 | 05:13 21:57 | 05:44 21:34 | 06:33 20:36 | 07:24 19:50 | 07:16 18:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 05:24 21:37 | 05:14 21:57 | 05:45 21:32 | 06:35 20:33 | 07:26 19:52 | 07:17 18:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 05:23 21:38 | 05:14 21:57 | 05:47 21:31 | 06:36 20:31 | 07:27 19:53 | 07:19 18:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 08:19 17:13 | 07:23 18:00 | 06:19 18:50 | 06:09 20:53 | 05:22 21:39 | 05:15 21:57 | 05:48 21:29 | 06:38 20:29 | 07:29 19:51 | 07:21 17:12 | 08:15 16:27 | 08:41 16:28 |
| 30 | 08:18 17:15 | 07:23 18:02 | 06:19 18:50 | 06:07 20:55 | 05:21 21:40 | 05:15 21:57 | 05:50 21:28 | 06:40 20:27 | 07:31 19:15 | 07:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 08:16 17:17 | 07:23 18:04 | 06:19 18:50 | 06:07 20:55 | 05:20 21:41 | 05:15 21:57 | 05:51 21:26 | 06:41 20:24 | 07:31 17:08 | 07:25 16:26 | 08:16 16:26 | 08:42 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 282 | | | | 286 | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 50-NW - IP 50-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | May | June | July | August | September | October | November | December | | | |
|---------------------------|--------|---------|-------|------------------|-------|---------------|-------|--------|-----------|---------------|---------------|----------|-------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 19:51 (WEA 2) | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 20:06 (WEA 2) | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 19:53 (WEA 2) | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 20:04 (WEA 2) | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 19:57 (WEA 2) | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:20 | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 20:01 (WEA 2) | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | 16:23 | | |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 08:23 | | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | | |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:24 | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:22 | | |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:22 | | |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 16:22 | | |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 16:52 | 16:21 | | |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | | 05:13 | 05:24 | 06:07 | 20:04 (WEA 2) | 06:58 | 07:47 | 08:29 | | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | | 21:51 | 21:52 | 21:09 | 7 | 20:11 (WEA 2) | 20:02 | 18:52 | 16:50 | 16:21 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | | 05:13 | 05:25 | 06:09 | 20:02 (WEA 2) | 06:59 | 07:49 | 07:44 | 08:30 | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | | 21:52 | 21:51 | 21:07 | 12 | 20:14 (WEA 2) | 19:59 | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | | 05:13 | 05:26 | 06:10 | 20:00 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | | 21:53 | 21:50 | 21:05 | 15 | 20:15 (WEA 2) | 19:57 | 18:47 | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | | 05:12 | 05:27 | 06:12 | 19:59 (WEA 2) | 07:03 | 07:53 | 07:48 | 08:32 | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | | 21:53 | 21:49 | 21:03 | 17 | 20:16 (WEA 2) | 19:55 | 18:45 | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | | 05:12 | 05:28 | 06:13 | 19:57 (WEA 2) | 07:04 | 07:54 | 07:50 | 08:33 | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | | 21:54 | 21:48 | 21:01 | 20 | 20:17 (WEA 2) | 19:52 | 18:43 | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | | 05:12 | 05:29 | 06:15 | 19:57 (WEA 2) | 07:06 | 07:56 | 07:51 | 08:34 | |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | | 21:55 | 21:47 | 20:59 | 21 | 20:18 (WEA 2) | 19:50 | 18:41 | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | | 05:12 | 05:30 | 06:17 | 19:55 (WEA 2) | 07:07 | 07:58 | 07:53 | 08:35 | |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | | 21:55 | 21:46 | 20:57 | 22 | 20:17 (WEA 2) | 19:48 | 18:39 | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | 19:56 (WEA 2) | 05:12 | 05:32 | 06:18 | 19:55 (WEA 2) | 07:09 | 08:00 | 07:55 | 08:36 | |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | 20:06 (WEA 2) | 21:56 | 21:45 | 20:55 | 23 | 20:18 (WEA 2) | 19:45 | 18:36 | 16:40 | 16:21 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | 19:54 (WEA 2) | 05:12 | 05:33 | 06:20 | 19:54 (WEA 2) | 07:11 | 08:01 | 07:57 | 08:37 | |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 20:07 (WEA 2) | 21:56 | 21:44 | 20:53 | 23 | 20:17 (WEA 2) | 19:43 | 18:34 | 16:39 | 16:21 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | 19:52 (WEA 2) | 05:12 | 05:34 | 06:22 | 19:55 (WEA 2) | 07:12 | 08:03 | 07:58 | 08:37 | |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 20:09 (WEA 2) | 21:56 | 21:43 | 20:51 | 22 | 20:17 (WEA 2) | 19:41 | 18:32 | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 05:33 | 19:51 (WEA 2) | 05:12 | 05:36 | 06:23 | 19:54 (WEA 2) | 07:14 | 08:05 | 08:00 | 08:38 | |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | 20:11 (WEA 2) | 21:57 | 21:42 | 20:48 | 23 | 20:17 (WEA 2) | 19:38 | 18:30 | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 05:31 | 19:50 (WEA 2) | 05:12 | 05:37 | 06:25 | 19:54 (WEA 2) | 07:16 | 08:07 | 08:02 | 08:39 | |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | 20:12 (WEA 2) | 21:57 | 21:41 | 20:46 | 22 | 20:16 (WEA 2) | 19:36 | 18:28 | 16:35 | 16:23 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 05:30 | 19:50 (WEA 2) | 05:12 | 05:38 | 06:27 | 19:55 (WEA 2) | 07:17 | 08:08 | 08:03 | 08:39 | |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 20:12 (WEA 2) | 21:57 | 21:39 | 20:44 | 21 | 20:16 (WEA 2) | 19:33 | 18:26 | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 05:29 | 19:49 (WEA 2) | 05:12 | 05:40 | 06:28 | 21 | 20:16 (WEA 2) | 07:19 | 08:10 | 08:05 | 08:40 |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 20:12 (WEA 2) | 21:57 | 21:38 | 20:42 | 19 | 20:14 (WEA 2) | 19:31 | 18:24 | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 05:28 | 19:49 (WEA 2) | 05:13 | 05:41 | 06:30 | 19:56 (WEA 2) | 07:21 | 08:12 | 08:07 | 08:40 | |
| | 17:05 | 18:02 | 18:52 | 20:45 | 21:33 | 20:12 (WEA 2) | 21:57 | 21:37 | 20:40 | 17 | 20:13 (WEA 2) | 19:29 | 18:22 | 16:31 | 16:24 |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 05:26 | 19:49 (WEA 2) | 05:13 | 05:42 | 06:31 | 19:57 (WEA 2) | 07:22 | 07:14 | 08:08 | 08:41 | |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 20:12 (WEA 2) | 21:57 | 21:35 | 20:38 | 13 | 20:10 (WEA 2) | 19:26 | 17:20 | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 05:25 | 19:49 (WEA 2) | 05:13 | 05:44 | 06:33 | 19:59 (WEA 2) | 07:24 | 07:16 | 08:10 | 08:41 | |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21:35 | 20:11 (WEA 2) | 21:57 | 21:34 | 20:36 | 9 | 20:08 (WEA 2) | 19:24 | 17:18 | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 05:24 | 19:49 (WEA 2) | 05:14 | 05:45 | 06:35 | | 07:26 | 07:17 | 08:12 | 08:41 | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 20:11 (WEA 2) | 21:57 | 21:32 | 20:33 | | 19:22 | 17:16 | 16:29 | 16:26 | |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 05:23 | 19:49 (WEA 2) | 05:14 | 05:47 | 06:36 | | 07:27 | 07:19 | 08:13 | 08:41 | |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21:38 | 20:10 (WEA 2) | 21:57 | 21:31 | 20:31 | | 19:19 | 17:14 | 16:28 | 16:27 | |
| 29 | 08:19 | 07:17 | 06:09 | 06:01 | 05:22 | 19:50 (WEA 2) | 05:15 | 05:48 | 06:38 | | 07:29 | 07:21 | 08:15 | 08:41 | |
| | 17:13 | 08:00 | 06:53 | 19:20:09 (WEA 2) | 21:39 | 20:09 (WEA 2) | 21:57 | 21:29 | 20:29 | | 19:17 | 17:12 | 16:27 | 16:28 | |
| 30 | 08:18 | 07:15 | 06:07 | 06:00 | 05:21 | 19:50 (WEA 2) | 05:15 | 05:50 | 06:40 | | 07:31 | 07:23 | 08:16 | 08:42 | |
| | 17:15 | 08:02 | 06:55 | 19:20:08 (WEA 2) | 21:40 | 20:08 (WEA 2) | 21:57 | 21:28 | 20:27 | | 19:15 | 17:10 | 16:26 | 16:29 | |
| 31 | 08:16 | 07:12 | 06:04 | 06:00 | 05:20 | | | 05:51 | 06:41 | | | 07:25 | 08:12 | 08:42 | |
| | 17:17 | 08:04 | 06:52 | 21:41 | 05:20 | | | 21:26 | 20:24 | | | 17:08 | 16:30 | 16:30 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | 500 | 503 | 454 | 306 | 381 | 331 | 266 | 243 | |
| astr.max.mögl.Beschattung | | | | 275 | | 30 | | | | | | | | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 51-NW - IP 51-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | May | June | July | August | September | Oktober | November | Dezember | | | |
|---------------------------|--------|---------|-------|-------|---------------|---------------|-------|--------|---------------|---------------|----------|----------|-------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 19:53 (WEA 2) | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 20:04 (WEA 2) | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 19:56 (WEA 2) | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 20:01 (WEA 2) | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:20 | 08:20 | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | 16:24 | | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 | 08:22 | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | 16:23 | 16:23 | | |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 08:23 | 08:23 | | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | 16:23 | | |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:24 | 08:24 | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:22 | 16:22 | | |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 08:26 | 08:26 | | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:22 | 16:22 | | |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | 08:27 | | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 16:22 | 16:22 | | |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | 08:28 | | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 16:52 | 16:21 | 16:21 | | |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | 07:43 | 08:29 | 08:29 | | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20:02 | 18:52 | 16:50 | 16:21 | 16:21 | | |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 20:04 (WEA 2) | 06:59 | 07:49 | 07:44 | 08:30 | | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 8 | 20:12 (WEA 2) | 19:59 | 18:50 | 16:49 | 16:21 | |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 20:01 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 | | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 12 | 20:13 (WEA 2) | 19:57 | 18:47 | 16:47 | 16:21 | |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 20:00 (WEA 2) | 07:03 | 07:53 | 07:48 | 08:32 | | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:53 | 21:49 | 21:03 | 15 | 20:15 (WEA 2) | 19:55 | 18:45 | 16:46 | 16:21 | |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 19:58 (WEA 2) | 07:04 | 07:54 | 07:50 | 08:33 | | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:48 | 21:01 | 18 | 20:16 (WEA 2) | 19:52 | 18:43 | 16:44 | 16:21 | |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 19:57 (WEA 2) | 07:06 | 07:56 | 07:51 | 08:34 | | |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:47 | 20:59 | 20 | 20:17 (WEA 2) | 19:50 | 18:41 | 16:43 | 16:21 | |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 19:59 (WEA 2) | 05:12 | 05:30 | 06:17 | 19:56 (WEA 2) | 07:07 | 07:58 | 07:53 | 08:35 | | |
| | 16:51 | 17:47 | 18:38 | 20:31 | 5 | 20:04 (WEA 2) | 21:21 | 21:55 | 21:46 | 20:57 | 21 | 19:48 | 18:39 | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 19:56 (WEA 2) | 05:12 | 05:32 | 06:18 | 19:56 (WEA 2) | 07:09 | 08:00 | 07:55 | 08:36 | 08:36 | |
| | 16:53 | 17:49 | 18:39 | 20:33 | 10 | 20:06 (WEA 2) | 21:22 | 21:56 | 21:45 | 20:55 | 21 | 19:45 | 18:36 | 16:40 | 16:21 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 19:54 (WEA 2) | 05:12 | 05:33 | 06:20 | 19:55 (WEA 2) | 07:11 | 08:01 | 07:57 | 08:37 | 08:37 | |
| | 16:54 | 17:51 | 18:41 | 20:34 | 13 | 20:07 (WEA 2) | 21:24 | 21:56 | 21:44 | 20:53 | 22 | 19:43 | 18:34 | 16:39 | 16:21 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 19:52 (WEA 2) | 05:12 | 05:34 | 06:22 | 19:55 (WEA 2) | 07:12 | 08:03 | 07:58 | 08:37 | 08:37 | |
| | 16:56 | 17:53 | 18:43 | 20:36 | 17 | 20:09 (WEA 2) | 21:25 | 21:56 | 21:43 | 20:51 | 22 | 19:41 | 18:32 | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 19:51 (WEA 2) | 05:12 | 05:36 | 06:23 | 19:54 (WEA 2) | 07:14 | 08:05 | 08:00 | 08:38 | 08:38 | |
| | 16:58 | 17:54 | 18:45 | 20:38 | 20 | 20:11 (WEA 2) | 21:27 | 21:57 | 21:42 | 20:48 | 22 | 19:38 | 18:30 | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 19:51 (WEA 2) | 05:12 | 05:37 | 06:25 | 19:55 (WEA 2) | 07:16 | 08:07 | 08:02 | 08:39 | 08:39 | |
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| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 19:50 (WEA 2) | 05:12 | 05:38 | 06:27 | 19:54 (WEA 2) | 07:17 | 08:08 | 08:03 | 08:39 | 08:39 | |
| | 17:01 | 17:58 | 18:48 | 20:41 | 22 | 20:12 (WEA 2) | 21:30 | 21:57 | 21:39 | 20:44 | 21 | 19:33 | 18:26 | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 19:50 (WEA 2) | 05:12 | 05:40 | 06:28 | 19:55 (WEA 2) | 07:19 | 08:10 | 08:05 | 08:40 | 08:40 | |
| | 17:03 | 18:00 | 18:50 | 20:43 | 22 | 20:12 (WEA 2) | 21:31 | 21:57 | 21:38 | 20:42 | 19 | 19:31 | 18:24 | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 19:49 (WEA 2) | 05:13 | 05:41 | 06:30 | 19:56 (WEA 2) | 07:21 | 08:12 | 08:07 | 08:40 | 08:40 | |
| | 17:05 | 18:02 | 18:52 | 20:45 | 22 | 20:11 (WEA 2) | 21:33 | 21:57 | 21:37 | 20:40 | 17 | 19:29 | 18:22 | 16:31 | 16:24 |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 19:49 (WEA 2) | 05:13 | 05:42 | 06:31 | 19:57 (WEA 2) | 07:22 | 07:14 | 08:08 | 08:41 | 08:41 | |
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| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 19:49 (WEA 2) | 05:13 | 05:44 | 06:33 | 19:59 (WEA 2) | 07:24 | 07:16 | 08:10 | 08:41 | 08:41 | |
| | 17:08 | 18:05 | 18:55 | 20:48 | 22 | 20:11 (WEA 2) | 21:35 | 21:57 | 21:34 | 20:36 | 9 | 19:24 | 17:18 | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 19:50 (WEA 2) | 05:14 | 05:45 | 06:35 | 20:02 (WEA 2) | 07:26 | 07:17 | 08:12 | 08:41 | 08:41 | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 20 | 20:10 (WEA 2) | 21:37 | 21:57 | 21:32 | 20:33 | 3 | 19:22 | 17:16 | 16:29 | 16:26 |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 19:50 (WEA 2) | 05:14 | 05:47 | 06:36 | 19:56 (WEA 2) | 07:27 | 07:19 | 08:13 | 08:41 | 08:41 | |
| | 17:12 | 18:09 | 18:58 | 20:51 | 19 | 20:09 (WEA 2) | 21:38 | 21:57 | 21:31 | 20:31 | | 19:19 | 17:14 | 16:28 | 16:27 |
| 29 | 08:19 | 07:17 | 06:09 | 06:02 | 19:51 (WEA 2) | 05:15 | 05:48 | 06:38 | 19:56 (WEA 2) | 07:29 | 07:21 | 08:15 | 08:41 | 08:41 | |
| | 17:13 | 08:00 | 06:09 | 06:02 | 17 | 20:08 (WEA 2) | 21:39 | 21:57 | 21:29 | 20:29 | | 19:17 | 17:12 | 16:27 | 16:28 |
| 30 | 08:18 | 07:15 | 06:07 | 06:01 | 19:52 (WEA 2) | 05:15 | 05:50 | 06:40 | 19:56 (WEA 2) | 07:31 | 07:23 | 08:16 | 08:42 | 08:42 | |
| | 17:15 | 08:02 | 06:07 | 06:01 | 14 | 20:06 (WEA 2) | 21:40 | 21:57 | 21:28 | 20:27 | | 19:15 | 17:10 | 16:26 | 16:29 |
| 31 | 08:16 | 07:12 | 06:04 | 06:00 | 05:20 | | | 05:51 | 06:41 | | | 07:25 | 08:12 | 08:42 | 08:42 |
| | 17:17 | 08:04 | 06:04 | 06:00 | 21:41 | | | 21:26 | 20:24 | | | 17:08 | 16:30 | 16:30 | 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 284 | 381 | 331 | 266 | 243 | 243 | 243 |
| astr.max.mögl.Beschattung | | | | 265 | 16 | | | | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 52-NW - IP 52-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | May | June | July | August | September | Oktober | November | Dezember | |
|---------------------------|--------|---------|-------|-------|-------|---------------|---------------|--------|-----------|---------|---------------|---------------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 19:53 (WEA 2) | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 20:10 (WEA 2) | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 17 | 20:10 (WEA 2) | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 08:28 |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 15 | 20:09 (WEA 2) | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 19:56 (WEA 2) | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:20 |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 12 | 20:08 (WEA 2) | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 19:58 (WEA 2) | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 7 | 20:05 (WEA 2) | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | | | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | | | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | | | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | | | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | | | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | | | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | | | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | | | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | | | 05:14 | 05:23 | 06:05 | 20:07 (WEA 2) | 06:56 | 07:46 |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | | | 21:51 | 21:53 | 21:10 | 9 | 20:16 (WEA 2) | 20:04 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | | | 05:13 | 05:24 | 06:07 | 13 | 20:04 (WEA 2) | 06:58 |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | | | 21:51 | 21:52 | 21:09 | 13 | 20:17 (WEA 2) | 20:02 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | | | 05:13 | 05:25 | 06:09 | 16 | 20:03 (WEA 2) | 06:59 |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | | | 21:52 | 21:51 | 21:07 | 16 | 20:19 (WEA 2) | 20:02 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | | | 05:13 | 05:26 | 06:10 | 18 | 20:01 (WEA 2) | 07:01 |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | | | 21:53 | 21:50 | 21:05 | 18 | 20:19 (WEA 2) | 20:01 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | | | 05:12 | 05:27 | 06:12 | 19 | 20:01 (WEA 2) | 07:03 |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | | | 21:53 | 21:49 | 21:03 | 19 | 20:20 (WEA 2) | 20:04 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | | | 05:12 | 05:28 | 06:13 | 21 | 19:59 (WEA 2) | 07:04 |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | | | 21:54 | 21:48 | 21:01 | 21 | 20:20 (WEA 2) | 20:04 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | | | 05:12 | 05:29 | 06:15 | 22 | 19:59 (WEA 2) | 07:06 |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | | | 21:55 | 21:47 | 20:59 | 22 | 20:21 (WEA 2) | 20:05 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | | | 05:12 | 05:30 | 06:17 | 22 | 19:58 (WEA 2) | 07:07 |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | | | 21:55 | 21:46 | 20:57 | 22 | 20:20 (WEA 2) | 20:04 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | | | 05:12 | 05:32 | 06:18 | 23 | 19:58 (WEA 2) | 07:09 |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | | | 21:56 | 21:45 | 20:55 | 23 | 20:21 (WEA 2) | 20:05 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | 20:01 (WEA 2) | | 05:12 | 05:33 | 06:20 | 23 | 19:58 (WEA 2) | 07:11 |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 6 | 20:07 (WEA 2) | 21:56 | 21:44 | 20:53 | 22 | 20:20 (WEA 2) | 20:05 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | 19:58 (WEA 2) | | 05:12 | 05:34 | 06:22 | 22 | 19:58 (WEA 2) | 07:12 |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 11 | 20:09 (WEA 2) | 21:56 | 21:43 | 20:51 | 22 | 20:20 (WEA 2) | 20:05 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 05:33 | 19:56 (WEA 2) | | 05:12 | 05:36 | 06:23 | 22 | 19:58 (WEA 2) | 07:14 |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | 15 | 20:11 (WEA 2) | 21:57 | 21:42 | 20:48 | 21 | 20:19 (WEA 2) | 20:05 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 05:31 | 19:55 (WEA 2) | | 05:12 | 05:37 | 06:25 | 21 | 19:59 (WEA 2) | 07:16 |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | 17 | 20:12 (WEA 2) | 21:57 | 21:41 | 20:46 | 19 | 20:18 (WEA 2) | 20:05 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 05:30 | 19:54 (WEA 2) | | 05:12 | 05:38 | 06:27 | 20 | 20:00 (WEA 2) | 07:17 |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | 20 | 20:14 (WEA 2) | 21:57 | 21:39 | 20:44 | 17 | 20:17 (WEA 2) | 20:05 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 05:29 | 19:53 (WEA 2) | | 05:12 | 05:40 | 06:28 | 14 | 20:14 (WEA 2) | 07:19 |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | 21 | 20:14 (WEA 2) | 21:57 | 21:38 | 20:42 | 14 | 20:14 (WEA 2) | 07:21 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 05:28 | 19:52 (WEA 2) | | 05:13 | 05:41 | 06:30 | 11 | 20:13 (WEA 2) | 07:22 |
| | 17:05 | 18:02 | 18:52 | 20:45 | 21:33 | 22 | 20:14 (WEA 2) | 21:57 | 21:37 | 20:40 | 11 | 20:13 (WEA 2) | 07:22 |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 05:26 | 19:52 (WEA 2) | | 05:13 | 05:42 | 06:31 | 6 | 20:10 (WEA 2) | 07:26 |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21:34 | 22 | 20:14 (WEA 2) | 21:57 | 21:35 | 20:38 | 6 | 20:10 (WEA 2) | 07:26 |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 05:25 | 19:52 (WEA 2) | | 05:13 | 05:44 | 06:33 | | | 07:24 |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21:35 | 22 | 20:14 (WEA 2) | 21:57 | 21:34 | 20:36 | | | 17:18 |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 05:24 | 19:52 (WEA 2) | | 05:14 | 05:45 | 06:35 | | | 07:26 |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21:37 | 22 | 20:14 (WEA 2) | 21:57 | 21:32 | 20:33 | | | 19:22 |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 05:23 | 19:52 (WEA 2) | | 05:14 | 05:47 | 06:36 | | | 07:27 |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21:38 | 21 | 20:13 (WEA 2) | 21:57 | 21:31 | 20:31 | | | 19:19 |
| 29 | 08:19 | 07:17 | 06:09 | 06:02 | 05:22 | 19:52 (WEA 2) | | 05:15 | 05:48 | 06:38 | | | 07:29 |
| | 17:13 | 08:00 | 20:00 | 20:53 | 21:39 | 20 | 20:12 (WEA 2) | 21:57 | 21:29 | 20:29 | | | 19:17 |
| 30 | 08:18 | 07:15 | 06:07 | 06:00 | 05:21 | 19:52 (WEA 2) | | 05:15 | 05:50 | 06:40 | | | 07:31 |
| | 17:15 | 08:02 | 20:02 | 20:55 | 21:40 | 20 | 20:12 (WEA 2) | 21:57 | 21:28 | 20:27 | | | 19:15 |
| 31 | 08:16 | 07:12 | 06:04 | 06:00 | 05:20 | | | 05:15 | 05:51 | 06:41 | | | 07:25 |
| | 17:17 | 08:04 | 20:04 | 21:00 | 21:41 | | | 21:26 | 20:24 | 20:24 | | | 17:08 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | 500 | 503 | 454 | 295 | 381 | 331 | 266 |
| astr.max.mögl.Beschattung | | | | 239 | 51 | | | | | | | | 243 |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 53-NW - IP 53-NW
Annahmen für Schattenwurfberechnung

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

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

| | Januar | Februar | März | April | May | June | July | August | September | Oktober | November | Dezember | | |
|---------------------------|--------|---------|-------|-------|------------------|---------------|-------|--------|-----------|------------------|----------|----------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 19:54 (WEA 2) | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 20:08 (WEA 2) | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 19:56 (WEA 2) | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 20:06 (WEA 2) | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 20:00 (WEA 2) | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:20 | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 20:03 (WEA 2) | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | | 21:46 | 21:56 | 21:19 | 20:15 | 19:06 | 17:00 | 16:23 | |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 08:23 | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:24 | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:22 | |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | | 05:15 | 05:21 | 06:02 | 06:53 | 07:42 | 07:37 | 08:26 | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | | 21:49 | 21:54 | 21:14 | 20:09 | 18:59 | 16:55 | 16:22 | |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | | 21:50 | 21:53 | 21:12 | 20:06 | 18:56 | 16:54 | 16:22 | |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | | 21:51 | 21:53 | 21:10 | 20:04 | 18:54 | 16:52 | 16:21 | |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | | 05:13 | 05:24 | 06:07 | 20:07 (WEA 2) | 06:58 | 07:47 | 08:29 | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | | 21:51 | 21:52 | 21:09 | 6 20:13 (WEA 2) | 20:02 | 18:52 | 16:50 | 16:21 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | | 05:13 | 05:25 | 06:09 | 20:04 (WEA 2) | 06:59 | 07:49 | 08:30 | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | | 21:52 | 21:51 | 21:07 | 12 20:16 (WEA 2) | 19:59 | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | | 05:13 | 05:26 | 06:10 | 20:02 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | | 21:53 | 21:50 | 21:05 | 15 20:17 (WEA 2) | 19:57 | 18:47 | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | | 05:12 | 05:27 | 06:12 | 20:01 (WEA 2) | 07:03 | 07:53 | 07:48 | 08:32 |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | | 21:53 | 21:49 | 21:03 | 18 20:19 (WEA 2) | 19:55 | 18:45 | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | | 05:12 | 05:28 | 06:13 | 20:00 (WEA 2) | 07:04 | 07:54 | 07:50 | 08:33 |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | | 21:54 | 21:48 | 21:01 | 19 20:19 (WEA 2) | 19:52 | 18:43 | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | | 05:12 | 05:29 | 06:15 | 19:59 (WEA 2) | 07:06 | 07:56 | 07:51 | 08:34 |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | | 21:55 | 21:47 | 20:59 | 21 20:20 (WEA 2) | 19:50 | 18:41 | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | | 05:12 | 05:30 | 06:17 | 19:58 (WEA 2) | 07:07 | 07:58 | 07:53 | 08:35 |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | | 21:55 | 21:46 | 20:57 | 21 20:19 (WEA 2) | 19:48 | 18:39 | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 20:02 (WEA 2) | 05:37 | 05:12 | 05:32 | 06:18 | 19:58 (WEA 2) | 07:09 | 08:00 | 07:55 | 08:36 |
| | 16:53 | 17:49 | 18:39 | 20:33 | 4 20:06 (WEA 2) | 21:22 | 21:56 | 21:45 | 20:55 | 22 20:20 (WEA 2) | 19:45 | 18:36 | 16:40 | 16:21 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 19:58 (WEA 2) | 05:36 | 05:12 | 05:33 | 06:20 | 19:57 (WEA 2) | 07:11 | 08:01 | 07:57 | 08:37 |
| | 16:54 | 17:51 | 18:41 | 20:34 | 9 20:07 (WEA 2) | 21:24 | 21:56 | 21:44 | 20:53 | 22 20:19 (WEA 2) | 19:43 | 18:34 | 16:39 | 16:21 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 19:56 (WEA 2) | 05:34 | 05:12 | 05:34 | 06:22 | 19:58 (WEA 2) | 07:12 | 08:03 | 07:58 | 08:37 |
| | 16:56 | 17:53 | 18:43 | 20:36 | 13 20:09 (WEA 2) | 21:25 | 21:56 | 21:43 | 20:51 | 21 20:19 (WEA 2) | 19:40 | 18:32 | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 19:55 (WEA 2) | 05:33 | 05:12 | 05:36 | 06:23 | 19:57 (WEA 2) | 07:14 | 08:05 | 08:00 | 08:38 |
| | 16:58 | 17:54 | 18:45 | 20:38 | 16 20:11 (WEA 2) | 21:27 | 21:57 | 21:42 | 20:48 | 21 20:18 (WEA 2) | 19:38 | 18:30 | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 19:54 (WEA 2) | 05:31 | 05:12 | 05:37 | 06:25 | 19:58 (WEA 2) | 07:16 | 08:07 | 08:02 | 08:39 |
| | 16:59 | 17:56 | 18:46 | 20:40 | 18 20:12 (WEA 2) | 21:28 | 21:57 | 21:41 | 20:46 | 20 20:18 (WEA 2) | 19:36 | 18:28 | 16:35 | 16:22 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 19:53 (WEA 2) | 05:30 | 05:12 | 05:38 | 06:27 | 19:58 (WEA 2) | 07:17 | 08:08 | 08:03 | 08:39 |
| | 17:01 | 17:58 | 18:48 | 20:41 | 20 20:13 (WEA 2) | 21:30 | 21:57 | 21:39 | 20:44 | 18 20:16 (WEA 2) | 19:33 | 18:26 | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 19:52 (WEA 2) | 05:29 | 05:12 | 05:40 | 06:28 | 19:59 (WEA 2) | 07:19 | 08:10 | 08:05 | 08:40 |
| | 17:03 | 18:00 | 18:50 | 20:43 | 22 20:14 (WEA 2) | 21:31 | 21:57 | 21:38 | 20:42 | 15 20:14 (WEA 2) | 19:31 | 18:24 | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 19:52 (WEA 2) | 05:28 | 05:13 | 05:41 | 06:30 | 20:00 (WEA 2) | 07:21 | 08:12 | 08:07 | 08:40 |
| | 17:05 | 18:02 | 18:51 | 20:45 | 22 20:14 (WEA 2) | 21:33 | 21:57 | 21:37 | 20:40 | 13 20:13 (WEA 2) | 19:29 | 18:22 | 16:31 | 16:24 |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 19:52 (WEA 2) | 05:26 | 05:13 | 05:42 | 06:31 | 20:01 (WEA 2) | 07:22 | 07:14 | 08:08 | 08:41 |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21 20:13 (WEA 2) | 21:34 | 21:57 | 21:35 | 20:38 | 9 20:10 (WEA 2) | 19:26 | 17:20 | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 19:52 (WEA 2) | 05:25 | 05:13 | 05:44 | 06:33 | | 07:24 | 07:16 | 08:10 | 08:41 |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21 20:13 (WEA 2) | 21:35 | 21:57 | 21:34 | 20:36 | | 19:24 | 17:18 | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 19:52 (WEA 2) | 05:24 | 05:14 | 05:45 | 06:35 | | 07:26 | 07:17 | 08:12 | 08:41 |
| | 17:10 | 18:07 | 18:57 | 20:50 | 21 20:13 (WEA 2) | 21:37 | 21:57 | 21:32 | 20:33 | | 19:22 | 17:16 | 16:29 | 16:26 |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 19:52 (WEA 2) | 05:23 | 05:14 | 05:47 | 06:36 | | 07:27 | 07:19 | 08:13 | 08:41 |
| | 17:12 | 18:09 | 18:58 | 20:51 | 20 20:12 (WEA 2) | 21:38 | 21:57 | 21:31 | 20:31 | | 19:19 | 17:14 | 16:28 | 16:27 |
| 29 | 08:19 | | 07:17 | 06:09 | 19:52 (WEA 2) | 05:22 | 05:15 | 05:48 | 06:38 | | 07:29 | 07:21 | 08:15 | 08:41 |
| | 17:13 | | 20:00 | 20:53 | 19 20:11 (WEA 2) | 21:39 | 21:57 | 21:29 | 20:29 | | 19:17 | 17:12 | 16:27 | 16:28 |
| 30 | 08:18 | | 07:15 | 06:07 | 19:53 (WEA 2) | 05:21 | 05:15 | 05:50 | 06:40 | | 07:31 | 07:23 | 08:16 | 08:42 |
| | 17:15 | | 20:02 | 20:55 | 17 20:10 (WEA 2) | 21:40 | 21:57 | 21:28 | 20:27 | | 19:15 | 17:10 | 16:26 | 16:29 |
| 31 | 08:16 | | 07:12 | | | 05:20 | | 05:51 | 06:41 | | | 07:25 | | 08:42 |
| | 17:17 | | 20:04 | | | 21:41 | | 21:26 | 20:24 | | | 17:08 | | 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | 500 | 503 | 454 | 273 | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 243 | | 27 | | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 54-NW - IP 54-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | May | June | July | August | September | October | November | December | | | | |
|---------------------------|--------|---------|-------|-------|---------------|---------------|---------------|--------|---------------|---------------|---------------|---------------|-------|-------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 19:55 (WEA 2) | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 20:17 (WEA 2) | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | | | |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 19:55 (WEA 2) | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 21:16 (WEA 2) | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | | | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 19:57 (WEA 2) | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:20 | | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 20:16 (WEA 2) | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | | | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 19:57 (WEA 2) | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 | | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 20:15 (WEA 2) | 21:46 | 21:56 | 21:20 | 20:15 | 19:06 | 17:00 | 16:23 | | | |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 19:58 (WEA 2) | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 08:23 | | | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 20:13 (WEA 2) | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | | | |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 19:59 (WEA 2) | 05:15 | 05:20 | 06:01 | 20:10 (WEA 2) | 06:51 | 07:41 | 07:35 | 08:24 | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 20:12 (WEA 2) | 21:48 | 21:55 | 21:16 | 10 | 20:20 (WEA 2) | 20:11 | 19:01 | 16:57 | 16:22 | |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | 20:02 (WEA 2) | 05:15 | 05:21 | 06:02 | 20:09 (WEA 2) | 06:53 | 07:42 | 07:37 | 08:26 | | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | 8 | 20:10 (WEA 2) | 21:49 | 21:54 | 21:14 | 14 | 20:23 (WEA 2) | 20:09 | 18:59 | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | 05:14 | 05:22 | 06:04 | 20:07 (WEA 2) | 06:54 | 07:44 | 07:39 | 08:27 | | | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | 21:50 | 21:53 | 21:12 | 16 | 20:27 (WEA 2) | 20:06 | 18:56 | 16:54 | 16:22 | | |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | 05:14 | 05:23 | 06:05 | 20:06 (WEA 2) | 06:56 | 07:46 | 07:41 | 08:28 | | | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | 21:51 | 21:53 | 21:10 | 19 | 20:25 (WEA 2) | 20:04 | 18:54 | 16:52 | 16:21 | | |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | 05:13 | 05:24 | 06:07 | 20:05 (WEA 2) | 06:58 | 07:47 | 07:43 | 08:29 | | | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | 21:51 | 21:52 | 21:09 | 20 | 20:25 (WEA 2) | 20:02 | 18:52 | 16:50 | 16:21 | | |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | 05:13 | 05:25 | 06:09 | 20:05 (WEA 2) | 06:59 | 07:49 | 07:44 | 08:30 | | | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | 21:52 | 21:51 | 21:07 | 21 | 20:26 (WEA 2) | 19:59 | 18:50 | 16:49 | 16:21 | | |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | 05:13 | 05:26 | 06:10 | 20:04 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 | | | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | 21:53 | 21:50 | 21:05 | 21 | 20:25 (WEA 2) | 19:57 | 18:47 | 16:47 | 16:21 | | |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | 05:12 | 05:27 | 06:12 | 20:04 (WEA 2) | 07:03 | 07:53 | 07:48 | 08:32 | | | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | 21:53 | 21:49 | 21:03 | 22 | 20:26 (WEA 2) | 19:55 | 18:45 | 16:46 | 16:21 | | |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | 05:12 | 05:28 | 06:13 | 20:03 (WEA 2) | 07:04 | 07:54 | 07:50 | 08:33 | | | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | 21:54 | 21:48 | 21:01 | 22 | 20:25 (WEA 2) | 19:52 | 18:43 | 16:44 | 16:21 | | |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | 05:12 | 05:29 | 06:15 | 20:03 (WEA 2) | 07:06 | 07:56 | 07:51 | 08:34 | | | |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | 21:55 | 21:47 | 20:59 | 23 | 20:26 (WEA 2) | 19:50 | 18:41 | 16:43 | 16:21 | | |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | 05:12 | 05:30 | 06:17 | 20:02 (WEA 2) | 07:07 | 07:58 | 07:53 | 08:35 | | | |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | 21:55 | 21:46 | 20:57 | 23 | 20:25 (WEA 2) | 19:48 | 18:39 | 16:41 | 16:21 | | |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | 05:12 | 05:32 | 06:18 | 20:03 (WEA 2) | 07:09 | 08:00 | 07:55 | 08:36 | | | |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | 21:56 | 21:45 | 20:55 | 22 | 20:25 (WEA 2) | 19:45 | 18:36 | 16:40 | 16:21 | | |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | 05:12 | 05:33 | 06:20 | 20:03 (WEA 2) | 07:11 | 08:01 | 07:57 | 08:37 | | | |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | 21:56 | 21:44 | 20:53 | 20 | 20:23 (WEA 2) | 19:43 | 18:34 | 16:39 | 16:21 | | |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | 05:12 | 05:34 | 06:22 | 20:04 (WEA 2) | 07:12 | 08:03 | 07:58 | 08:37 | | | |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | 21:56 | 21:43 | 20:51 | 19 | 20:23 (WEA 2) | 19:41 | 18:32 | 16:37 | 16:22 | | |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 20:08 (WEA 2) | 05:12 | 05:36 | 06:23 | 20:04 (WEA 2) | 07:14 | 08:05 | 08:00 | 08:38 | | | |
| | 16:58 | 17:54 | 18:45 | 20:38 | 1 | 20:09 (WEA 2) | 21:27 | 21:57 | 16 | 20:20 (WEA 2) | 19:38 | 18:30 | 16:36 | 16:22 | | |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 20:03 (WEA 2) | 05:12 | 05:37 | 06:25 | 20:06 (WEA 2) | 07:16 | 08:07 | 08:02 | 08:39 | | | |
| | 16:59 | 17:56 | 18:46 | 20:40 | 9 | 20:12 (WEA 2) | 21:28 | 21:57 | 13 | 20:19 (WEA 2) | 19:36 | 18:28 | 16:35 | 16:23 | | |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 20:01 (WEA 2) | 05:12 | 05:38 | 06:27 | 20:08 (WEA 2) | 07:17 | 08:08 | 08:03 | 08:39 | | | |
| | 17:01 | 17:58 | 18:48 | 20:41 | 13 | 20:14 (WEA 2) | 21:30 | 21:57 | 9 | 20:17 (WEA 2) | 19:33 | 18:26 | 16:34 | 16:23 | | |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 19:59 (WEA 2) | 05:12 | 05:40 | 06:28 | 07:19 | 08:10 | 08:05 | 08:40 | 16:23 | | | |
| | 17:03 | 18:00 | 18:50 | 20:43 | 17 | 20:16 (WEA 2) | 21:31 | 21:57 | 19 | 20:17 (WEA 2) | 19:31 | 18:24 | 16:33 | 16:23 | | |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 19:58 (WEA 2) | 05:13 | 05:41 | 06:30 | 07:21 | 08:12 | 08:07 | 08:40 | 16:24 | | | |
| | 17:05 | 18:02 | 18:52 | 20:45 | 19 | 20:17 (WEA 2) | 21:33 | 21:57 | 21 | 20:17 (WEA 2) | 19:29 | 18:22 | 16:31 | 16:24 | | |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 19:57 (WEA 2) | 05:13 | 05:42 | 06:31 | 07:22 | 07:14 | 08:08 | 08:41 | 16:25 | | | |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21 | 20:18 (WEA 2) | 21:34 | 21:57 | 21 | 20:17 (WEA 2) | 19:26 | 17:20 | 16:30 | 16:25 | | |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 19:56 (WEA 2) | 05:13 | 05:44 | 06:33 | 07:24 | 07:16 | 08:10 | 08:41 | 16:26 | | | |
| | 17:08 | 18:05 | 18:55 | 20:48 | 22 | 20:18 (WEA 2) | 21:35 | 21:57 | 21 | 20:17 (WEA 2) | 19:24 | 17:18 | 16:29 | 16:25 | | |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 19:56 (WEA 2) | 05:14 | 05:45 | 06:35 | 07:26 | 07:17 | 08:12 | 08:41 | 16:26 | | | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 22 | 20:18 (WEA 2) | 21:37 | 21:57 | 19 | 20:17 (WEA 2) | 19:22 | 17:16 | 16:29 | 16:26 | | |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 19:55 (WEA 2) | 05:14 | 05:47 | 06:36 | 07:27 | 07:19 | 08:13 | 08:41 | 16:27 | | | |
| | 17:12 | 18:09 | 18:58 | 20:51 | 23 | 20:18 (WEA 2) | 21:38 | 21:57 | 19 | 20:17 (WEA 2) | 19:19 | 17:14 | 16:28 | 16:27 | | |
| 29 | 08:19 | 07:17 | 06:09 | 06:02 | 19:55 (WEA 2) | 05:15 | 05:48 | 06:38 | 07:29 | 07:21 | 08:15 | 08:41 | 16:28 | | | |
| | 17:14 | 07:15 | 06:01 | 05:54 | 23 | 20:18 (WEA 2) | 21:39 | 21:57 | 19 | 20:17 (WEA 2) | 19:17 | 17:12 | 16:27 | 16:28 | | |
| 30 | 08:18 | 07:15 | 06:07 | 06:00 | 19:55 (WEA 2) | 05:15 | 05:50 | 06:40 | 07:31 | 07:23 | 08:16 | 08:42 | 16:29 | | | |
| | 17:15 | 07:16 | 06:02 | 05:55 | 22 | 20:17 (WEA 2) | 21:40 | 21:57 | 19 | 20:17 (WEA 2) | 19:15 | 17:10 | 16:26 | 16:29 | | |
| 31 | 08:16 | 07:12 | 06:04 | 06:00 | 05:20 | 05:15 | 05:51 | 06:41 | 07:32 | 07:25 | 08:18 | 08:42 | 16:30 | | | |
| | 17:17 | 07:13 | 06:04 | 06:00 | 21:41 | 21:26 | 20:24 | 06:42 | 07:33 | 07:26 | 08:19 | 08:43 | 16:30 | | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 310 | 381 | 331 | 266 | 243 | | | |
| astr.max.mögl.Beschattung | | | | 192 | | 116 | | | | | | | | | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 55-NW - IP 55-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | Mai | Juni | Juli | August | September | Oktober | November | Dezember | | |
|---------------------------|--------|---------|-------|-------|------------------|---------------|-------|--------|-----------|------------------|----------|----------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 19:56 (WEA 2) | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 20:16 (WEA 2) | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | |
| 2 | 08:41 | 08:13 | 07:19 | 07:08 | 06:03 | 19:56 (WEA 2) | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 20:15 (WEA 2) | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 19:58 (WEA 2) | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:20 | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 20:15 (WEA 2) | 21:45 | 21:56 | 21:21 | 20:18 | 19:08 | 17:02 | 16:24 | |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 19:59 (WEA 2) | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 20:13 (WEA 2) | 21:46 | 21:56 | 21:19 | 20:15 | 19:06 | 17:00 | 16:23 | |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 20:00 (WEA 2) | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 08:23 | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 20:11 (WEA 2) | 21:47 | 21:55 | 21:18 | 20:13 | 19:03 | 16:59 | 16:23 | |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 20:03 (WEA 2) | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:24 | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 20:08 (WEA 2) | 21:48 | 21:55 | 21:16 | 20:11 | 19:01 | 16:57 | 16:22 | |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | | 05:15 | 05:21 | 06:02 | 20:12 (WEA 2) | 06:53 | 07:42 | 07:37 | 08:26 |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | | 21:49 | 21:54 | 21:14 | 7 20:19 (WEA 2) | 20:09 | 18:59 | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | | 05:14 | 05:22 | 06:04 | 20:09 (WEA 2) | 06:54 | 07:44 | 07:39 | 08:27 |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | | 21:50 | 21:53 | 21:12 | 12 20:21 (WEA 2) | 20:06 | 18:56 | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | | 05:14 | 05:23 | 06:05 | 20:08 (WEA 2) | 06:56 | 07:46 | 07:41 | 08:28 |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | | 21:51 | 21:53 | 21:10 | 15 20:23 (WEA 2) | 20:04 | 18:54 | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | | 05:13 | 05:24 | 06:07 | 20:06 (WEA 2) | 06:58 | 07:47 | 07:43 | 08:29 |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | | 21:51 | 21:52 | 21:09 | 17 20:23 (WEA 2) | 20:02 | 18:52 | 16:50 | 16:21 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | | 05:13 | 05:25 | 06:09 | 20:06 (WEA 2) | 06:59 | 07:49 | 07:44 | 08:30 |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | | 21:52 | 21:51 | 21:07 | 19 20:25 (WEA 2) | 19:59 | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | | 05:13 | 05:26 | 06:10 | 20:04 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | | 21:53 | 21:50 | 21:05 | 20 20:24 (WEA 2) | 19:57 | 18:47 | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | | 05:12 | 05:27 | 06:12 | 20:04 (WEA 2) | 07:03 | 07:53 | 07:48 | 08:32 |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | | 21:53 | 21:49 | 21:03 | 21 20:25 (WEA 2) | 19:55 | 18:45 | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | | 05:12 | 05:28 | 06:13 | 20:03 (WEA 2) | 07:04 | 07:54 | 07:50 | 08:33 |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | | 21:54 | 21:48 | 21:01 | 22 20:25 (WEA 2) | 19:52 | 18:43 | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | | 05:12 | 05:29 | 06:15 | 20:04 (WEA 2) | 07:06 | 07:56 | 07:51 | 08:34 |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | | 21:55 | 21:47 | 20:59 | 21 20:25 (WEA 2) | 19:50 | 18:41 | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | | 05:12 | 05:30 | 06:17 | 20:03 (WEA 2) | 07:07 | 07:58 | 07:53 | 08:35 |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | | 21:55 | 21:46 | 20:57 | 21 20:24 (WEA 2) | 19:48 | 18:39 | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | | 05:12 | 05:32 | 06:18 | 20:03 (WEA 2) | 07:09 | 08:00 | 07:55 | 08:36 |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | | 21:56 | 21:45 | 20:55 | 21 20:24 (WEA 2) | 19:45 | 18:36 | 16:40 | 16:21 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | | 05:12 | 05:33 | 06:20 | 20:03 (WEA 2) | 07:11 | 08:01 | 07:57 | 08:37 |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | | 21:56 | 21:44 | 20:53 | 20 20:23 (WEA 2) | 19:43 | 18:34 | 16:39 | 16:21 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | | 05:12 | 05:34 | 06:22 | 20:04 (WEA 2) | 07:12 | 08:03 | 07:58 | 08:37 |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | | 21:56 | 21:43 | 20:51 | 19 20:23 (WEA 2) | 19:40 | 18:32 | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 20:05 (WEA 2) | 05:33 | 05:12 | 05:36 | 06:23 | 20:04 (WEA 2) | 07:14 | 08:05 | 08:00 | 08:38 |
| | 16:58 | 17:54 | 18:45 | 20:38 | 6 20:11 (WEA 2) | 21:27 | 21:57 | 21:42 | 20:48 | 16 20:20 (WEA 2) | 19:38 | 18:30 | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 20:02 (WEA 2) | 05:31 | 05:12 | 05:37 | 06:25 | 20:05 (WEA 2) | 07:16 | 08:07 | 08:02 | 08:39 |
| | 16:59 | 17:56 | 18:46 | 20:40 | 10 20:12 (WEA 2) | 21:28 | 21:57 | 21:41 | 20:46 | 14 20:19 (WEA 2) | 19:36 | 18:28 | 16:35 | 16:23 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 20:00 (WEA 2) | 05:30 | 05:12 | 05:38 | 06:27 | 20:06 (WEA 2) | 07:17 | 08:08 | 08:03 | 08:39 |
| | 17:01 | 17:58 | 18:48 | 20:41 | 14 20:14 (WEA 2) | 21:30 | 21:57 | 21:39 | 20:44 | 10 20:16 (WEA 2) | 19:33 | 18:26 | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 19:59 (WEA 2) | 05:29 | 05:12 | 05:40 | 06:28 | 20:09 (WEA 2) | 07:19 | 08:10 | 08:05 | 08:40 |
| | 17:03 | 18:00 | 18:50 | 20:43 | 17 20:16 (WEA 2) | 21:31 | 21:57 | 21:38 | 20:42 | 5 20:14 (WEA 2) | 19:31 | 18:24 | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 19:58 (WEA 2) | 05:28 | 05:13 | 05:41 | 06:30 | | 07:21 | 08:12 | 08:07 | 08:40 |
| | 17:05 | 18:02 | 18:51 | 20:45 | 19 20:17 (WEA 2) | 21:33 | 21:57 | 21:37 | 20:40 | | 19:29 | 18:22 | 16:31 | 16:24 |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 19:57 (WEA 2) | 05:26 | 05:13 | 05:42 | 06:31 | | 07:22 | 07:14 | 08:08 | 08:41 |
| | 17:06 | 18:04 | 18:53 | 20:46 | 21 20:18 (WEA 2) | 21:34 | 21:57 | 21:35 | 20:38 | | 19:26 | 17:20 | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 19:57 (WEA 2) | 05:25 | 05:13 | 05:44 | 06:33 | | 07:24 | 07:16 | 08:10 | 08:41 |
| | 17:08 | 18:05 | 18:55 | 20:48 | 21 20:18 (WEA 2) | 21:35 | 21:57 | 21:34 | 20:36 | | 19:24 | 17:18 | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 19:56 (WEA 2) | 05:24 | 05:14 | 05:45 | 06:35 | | 07:26 | 07:17 | 08:12 | 08:41 |
| | 17:10 | 18:07 | 18:57 | 20:50 | 22 20:18 (WEA 2) | 21:37 | 21:57 | 21:32 | 20:33 | | 19:22 | 17:16 | 16:29 | 16:26 |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 19:56 (WEA 2) | 05:23 | 05:14 | 05:47 | 06:36 | | 07:27 | 07:19 | 08:13 | 08:41 |
| | 17:12 | 18:09 | 18:58 | 20:51 | 22 20:18 (WEA 2) | 21:38 | 21:57 | 21:31 | 20:31 | | 19:19 | 17:14 | 16:28 | 16:27 |
| 29 | 08:19 | 07:17 | 06:09 | 06:02 | 19:56 (WEA 2) | 05:22 | 05:15 | 05:48 | 06:38 | | 07:29 | 07:21 | 08:15 | 08:41 |
| | 17:13 | 08:00 | 20:00 | 20:53 | 21 20:17 (WEA 2) | 21:39 | 21:57 | 21:29 | 20:29 | | 19:17 | 17:12 | 16:27 | 16:28 |
| 30 | 08:18 | 07:15 | 06:07 | 06:01 | 19:56 (WEA 2) | 05:21 | 05:15 | 05:50 | 06:40 | | 07:31 | 07:23 | 08:16 | 08:42 |
| | 17:15 | 08:02 | 20:02 | 20:55 | 21 20:17 (WEA 2) | 21:40 | 21:57 | 21:28 | 20:27 | | 19:15 | 17:10 | 16:26 | 16:29 |
| 31 | 08:16 | 07:12 | 06:04 | 06:00 | 05:20 | | | 05:51 | 06:41 | | | 07:25 | 08:18 | 08:42 |
| | 17:17 | 08:04 | 20:04 | 21:41 | 21:41 | | | 21:26 | 20:24 | | | 17:08 | 16:30 | 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | 500 | 503 | 454 | 280 | 381 | 331 | 266 | 243 | |
| astr.max.mögl.Beschattung | | | | 194 | 86 | | | | | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|---------------------------|---------------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenziertes Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 56-NW - IP 56-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | May | June | July | August | September | October | November | December | | |
|---------------------------|--------|---------|-------|------------------|------------------|------------------|-------|--------|-----------|------------------|----------|----------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 20:00 (WEA 2) | 05:19 | 05:16 | 05:53 | 20:20 (WEA 2) | 06:43 | 07:32 | 07:26 | 08:18 |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 23 20:23 (WEA 2) | 21:43 | 21:57 | 21:25 | 3 20:23 (WEA 2) | 20:22 | 19:12 | 17:06 | 16:25 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | 06:03 | 19:59 (WEA 2) | 05:18 | 05:17 | 05:54 | 20:16 (WEA 2) | 06:45 | 07:34 | 07:28 | 08:19 |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 23 20:22 (WEA 2) | 21:44 | 21:56 | 21:23 | 10 20:26 (WEA 2) | 20:20 | 19:10 | 17:04 | 16:25 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 20:00 (WEA 2) | 05:18 | 05:18 | 05:56 | 20:15 (WEA 2) | 06:46 | 07:36 | 07:30 | 08:20 |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 23 20:23 (WEA 2) | 21:45 | 21:56 | 21:21 | 13 20:28 (WEA 2) | 20:18 | 19:08 | 17:02 | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 20:00 (WEA 2) | 05:17 | 05:18 | 05:57 | 20:13 (WEA 2) | 06:48 | 07:37 | 07:32 | 08:22 |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 22 20:22 (WEA 2) | 21:46 | 21:56 | 21:20 | 16 20:29 (WEA 2) | 20:15 | 19:06 | 17:00 | 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 20:00 (WEA 2) | 05:16 | 05:19 | 05:59 | 20:12 (WEA 2) | 06:49 | 07:39 | 07:34 | 08:23 |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 22 20:22 (WEA 2) | 21:47 | 21:55 | 21:18 | 18 20:30 (WEA 2) | 20:13 | 19:03 | 16:59 | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 20:00 (WEA 2) | 05:15 | 05:20 | 06:01 | 20:11 (WEA 2) | 06:51 | 07:41 | 07:35 | 08:24 |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 21 20:21 (WEA 2) | 21:48 | 21:55 | 21:16 | 19 20:30 (WEA 2) | 20:11 | 19:01 | 16:57 | 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | 20:02 (WEA 2) | 05:15 | 05:21 | 06:02 | 20:11 (WEA 2) | 06:53 | 07:42 | 07:37 | 08:26 |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | 19 20:21 (WEA 2) | 21:49 | 21:54 | 21:14 | 20 20:31 (WEA 2) | 20:09 | 18:59 | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | 20:02 (WEA 2) | 05:14 | 05:22 | 06:04 | 20:09 (WEA 2) | 06:54 | 07:44 | 07:39 | 08:27 |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | 17 20:19 (WEA 2) | 21:50 | 21:53 | 21:12 | 22 20:31 (WEA 2) | 20:06 | 18:56 | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | 20:03 (WEA 2) | 05:14 | 05:23 | 06:05 | 20:10 (WEA 2) | 06:56 | 07:46 | 07:41 | 08:28 |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | 15 20:18 (WEA 2) | 21:51 | 21:53 | 21:10 | 22 20:32 (WEA 2) | 20:04 | 18:54 | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | 20:05 (WEA 2) | 05:13 | 05:24 | 06:07 | 20:09 (WEA 2) | 06:58 | 07:47 | 07:43 | 08:29 |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | 12 20:17 (WEA 2) | 21:51 | 21:52 | 21:09 | 22 20:31 (WEA 2) | 20:02 | 18:52 | 16:50 | 16:21 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | 20:06 (WEA 2) | 05:13 | 05:25 | 06:09 | 20:09 (WEA 2) | 06:59 | 07:49 | 07:44 | 08:30 |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | 8 20:14 (WEA 2) | 21:52 | 21:51 | 21:07 | 23 20:32 (WEA 2) | 19:59 | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | | 05:13 | 05:26 | 06:10 | 20:08 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | | 21:53 | 21:50 | 21:05 | 23 20:31 (WEA 2) | 19:57 | 18:47 | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | | 05:12 | 05:27 | 06:12 | 20:09 (WEA 2) | 07:03 | 07:53 | 07:48 | 08:32 |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | | 21:53 | 21:49 | 21:03 | 22 20:31 (WEA 2) | 19:55 | 18:45 | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | | 05:12 | 05:28 | 06:13 | 20:09 (WEA 2) | 07:04 | 07:54 | 07:50 | 08:33 |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | | 21:54 | 21:48 | 21:01 | 21 20:30 (WEA 2) | 19:52 | 18:43 | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | | 05:12 | 05:29 | 06:15 | 20:09 (WEA 2) | 07:06 | 07:56 | 07:51 | 08:34 |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | | 21:55 | 21:47 | 20:59 | 21 20:30 (WEA 2) | 19:50 | 18:41 | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | | 05:12 | 05:30 | 06:17 | 20:09 (WEA 2) | 07:07 | 07:58 | 07:53 | 08:35 |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | | 21:55 | 21:46 | 20:57 | 19 20:28 (WEA 2) | 19:48 | 18:39 | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | | 05:12 | 05:32 | 06:18 | 20:11 (WEA 2) | 07:09 | 08:00 | 07:55 | 08:36 |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | | 21:56 | 21:45 | 20:55 | 16 20:27 (WEA 2) | 19:45 | 18:36 | 16:40 | 16:21 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | | 05:12 | 05:33 | 06:20 | 20:11 (WEA 2) | 07:11 | 08:01 | 07:57 | 08:37 |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | | 21:56 | 21:44 | 20:53 | 13 20:24 (WEA 2) | 19:43 | 18:34 | 16:39 | 16:21 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | | 05:12 | 05:34 | 06:22 | 20:14 (WEA 2) | 07:12 | 08:03 | 07:58 | 08:37 |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | | 21:56 | 21:43 | 20:51 | 9 20:23 (WEA 2) | 19:41 | 18:32 | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 05:33 | | 05:12 | 05:36 | 06:23 | | 07:14 | 08:05 | 08:00 | 08:38 |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | | 21:57 | 21:42 | 20:48 | | 19:38 | 18:30 | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 05:31 | | 05:12 | 05:37 | 06:25 | | 07:16 | 08:07 | 08:02 | 08:39 |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | | 21:57 | 21:41 | 20:46 | | 19:36 | 18:28 | 16:35 | 16:23 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 05:30 | | 05:12 | 05:38 | 06:27 | | 07:17 | 08:08 | 08:03 | 08:39 |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | | 21:57 | 21:39 | 20:44 | | 19:33 | 18:26 | 16:34 | 16:23 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 05:29 | | 05:12 | 05:40 | 06:28 | | 07:19 | 08:10 | 08:05 | 08:40 |
| | 17:03 | 18:00 | 18:50 | 20:43 | 21:31 | | 21:57 | 21:38 | 20:42 | | 19:31 | 18:24 | 16:33 | 16:23 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 05:28 | 20:08 (WEA 2) | 05:13 | 05:41 | 06:30 | | 07:21 | 08:12 | 08:07 | 08:40 |
| | 17:05 | 18:02 | 18:52 | 20:45 | 9 20:17 (WEA 2) | 21:33 | 21:57 | 21:37 | 20:40 | | 19:29 | 18:22 | 16:31 | 16:24 |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 05:26 | 20:05 (WEA 2) | 05:13 | 05:42 | 06:31 | | 07:22 | 07:14 | 08:08 | 08:41 |
| | 17:06 | 18:04 | 18:53 | 20:46 | 14 20:19 (WEA 2) | 21:34 | 21:57 | 21:35 | 20:38 | | 19:26 | 17:20 | 16:30 | 16:25 |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 05:25 | 20:04 (WEA 2) | 05:13 | 05:44 | 06:33 | | 07:24 | 07:16 | 08:10 | 08:41 |
| | 17:08 | 18:05 | 18:55 | 20:48 | 16 20:20 (WEA 2) | 21:35 | 21:57 | 21:34 | 20:36 | | 19:24 | 17:18 | 16:29 | 16:25 |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 05:24 | 20:03 (WEA 2) | 05:14 | 05:45 | 06:35 | | 07:26 | 07:17 | 08:12 | 08:41 |
| | 17:10 | 18:07 | 18:57 | 20:50 | 19 20:22 (WEA 2) | 21:37 | 21:57 | 21:32 | 20:33 | | 19:22 | 17:16 | 16:29 | 16:26 |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 05:23 | 20:02 (WEA 2) | 05:14 | 05:47 | 06:36 | | 07:27 | 07:19 | 08:13 | 08:41 |
| | 17:12 | 18:09 | 18:58 | 20:51 | 20 20:22 (WEA 2) | 21:38 | 21:57 | 21:31 | 20:31 | | 19:19 | 17:14 | 16:28 | 16:27 |
| 29 | 08:19 | 07:17 | 06:09 | 06:02 | 05:22 | 20:01 (WEA 2) | 05:15 | 05:48 | 06:38 | | 07:29 | 07:21 | 08:15 | 08:41 |
| | 17:14 | 07:00 | 20:03 | 22 20:23 (WEA 2) | 21:39 | | 21:57 | 21:29 | 20:29 | | 19:17 | 17:12 | 16:27 | 16:28 |
| 30 | 08:18 | 07:15 | 06:07 | 06:00 | 05:21 | 20:00 (WEA 2) | 05:15 | 05:50 | 06:40 | | 07:31 | 07:23 | 08:16 | 08:42 |
| | 17:15 | 07:02 | 20:05 | 23 20:23 (WEA 2) | 21:40 | | 21:57 | 21:28 | 20:27 | | 19:15 | 17:10 | 16:26 | 16:29 |
| 31 | 08:16 | 07:12 | 06:04 | 06:00 | 05:20 | | | 05:51 | 06:41 | | | 07:25 | | 08:42 |
| | 17:17 | 07:04 | | 21:41 | | | | 21:26 | 20:24 | | | 17:08 | | 16:30 |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | 500 | 503 | 454 | 332 | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | | | | 123 | 205 | | | | | | | | | |

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: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 57-NW - IP 57-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | | Mai | | Juni | |
|---------------------------|--------|---------|-------|-------|----|---------------|----|---------------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | | 06:05 | | 20:04 (WEA 2) | 05:19 |
| | 16:31 | 17:19 | 18:11 | 20:05 | | 20:57 | 22 | 20:26 (WEA 2) | 21:43 |
| 2 | 08:42 | 08:13 | 07:19 | 07:08 | | 06:03 | | 20:03 (WEA 2) | 05:18 |
| | 16:32 | 17:21 | 18:13 | 20:07 | | 20:58 | 23 | 20:26 (WEA 2) | 21:44 |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | | 06:01 | | 20:04 (WEA 2) | 05:18 |
| | 16:33 | 17:23 | 18:15 | 20:09 | | 21:00 | 23 | 20:27 (WEA 2) | 21:45 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | | 05:59 | | 20:03 (WEA 2) | 05:17 |
| | 16:34 | 17:25 | 18:16 | 20:10 | | 21:02 | 23 | 20:26 (WEA 2) | 21:46 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | | 05:57 | | 20:03 (WEA 2) | 05:16 |
| | 16:35 | 17:26 | 18:18 | 20:12 | | 21:03 | 23 | 20:26 (WEA 2) | 21:47 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | | 05:55 | | 20:03 (WEA 2) | 05:15 |
| | 16:37 | 17:28 | 18:20 | 20:14 | | 21:05 | 22 | 20:25 (WEA 2) | 21:48 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | | 05:54 | | 20:04 (WEA 2) | 05:15 |
| | 16:38 | 17:30 | 18:22 | 20:16 | | 21:07 | 21 | 20:25 (WEA 2) | 21:49 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | | 05:52 | | 20:04 (WEA 2) | 05:14 |
| | 16:39 | 17:32 | 18:24 | 20:17 | | 21:08 | 21 | 20:25 (WEA 2) | 21:50 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | | 05:50 | | 20:04 (WEA 2) | 05:14 |
| | 16:41 | 17:34 | 18:25 | 20:19 | | 21:10 | 20 | 20:24 (WEA 2) | 21:51 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | | 05:48 | | 20:05 (WEA 2) | 05:13 |
| | 16:42 | 17:36 | 18:27 | 20:21 | | 21:11 | 18 | 20:23 (WEA 2) | 21:51 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | | 05:47 | | 20:06 (WEA 2) | 05:13 |
| | 16:43 | 17:38 | 18:29 | 20:22 | | 21:13 | 16 | 20:22 (WEA 2) | 21:52 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | | 05:45 | | 20:08 (WEA 2) | 05:13 |
| | 16:45 | 17:40 | 18:31 | 20:24 | | 21:15 | 13 | 20:21 (WEA 2) | 21:53 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | | 05:43 | | 20:09 (WEA 2) | 05:12 |
| | 16:46 | 17:41 | 18:32 | 20:26 | | 21:16 | 10 | 20:19 (WEA 2) | 21:53 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | | 05:42 | | 20:13 (WEA 2) | 05:12 |
| | 16:48 | 17:43 | 18:34 | 20:28 | | 21:18 | 3 | 20:16 (WEA 2) | 21:54 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | | 05:40 | | | 05:12 |
| | 16:50 | 17:45 | 18:36 | 20:29 | | 21:19 | | | 21:55 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | | 05:39 | | | 05:12 |
| | 16:51 | 17:47 | 18:38 | 20:31 | | 21:21 | | | 21:55 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | | 05:37 | | | 05:12 |
| | 16:53 | 17:49 | 18:39 | 20:33 | | 21:22 | | | 21:56 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | | 05:36 | | | 05:12 |
| | 16:54 | 17:51 | 18:41 | 20:34 | | 21:24 | | | 21:56 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | | 05:34 | | | 05:12 |
| | 16:56 | 17:53 | 18:43 | 20:36 | | 21:25 | | | 21:56 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | | 05:33 | | | 05:12 |
| | 16:58 | 17:54 | 18:45 | 20:38 | | 21:27 | | | 21:57 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | | 05:31 | | | 05:12 |
| | 16:59 | 17:56 | 18:46 | 20:40 | | 21:28 | | | 21:57 |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | | 05:30 | | | 05:12 |
| | 17:01 | 17:58 | 18:48 | 20:41 | | 21:30 | | | 21:57 |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | | 05:29 | | | 05:12 |
| | 17:03 | 18:00 | 18:50 | 20:43 | | 21:31 | | | 21:57 |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | | 05:28 | | | 05:13 |
| | 17:05 | 18:02 | 18:52 | 20:45 | | 21:33 | | | 21:57 |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | | 20:15 (WEA 2) | | | 05:13 |
| | 17:06 | 18:04 | 18:53 | 20:46 | 3 | 20:18 (WEA 2) | | | 21:57 |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | | 20:11 (WEA 2) | | | 05:13 |
| | 17:08 | 18:05 | 18:55 | 20:48 | 9 | 20:20 (WEA 2) | | | 21:57 |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | | 20:08 (WEA 2) | | | 05:14 |
| | 17:10 | 18:07 | 18:57 | 20:50 | 14 | 20:22 (WEA 2) | | | 21:57 |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | | 20:07 (WEA 2) | | | 05:14 |
| | 17:12 | 18:09 | 18:58 | 20:51 | 16 | 20:23 (WEA 2) | | | 21:57 |
| 29 | 08:19 | | 07:17 | 06:09 | | 20:06 (WEA 2) | | | 05:15 |
| | 17:14 | | 20:00 | 20:53 | 19 | 20:25 (WEA 2) | | | 21:57 |
| 30 | 08:18 | | 07:15 | 06:07 | | 20:05 (WEA 2) | | | 05:15 |
| | 17:15 | | 20:02 | 20:55 | 20 | 20:25 (WEA 2) | | | 21:57 |
| 31 | 08:16 | | 07:12 | | | 05:20 | | | |
| | 17:17 | | 20:04 | | | 21:41 | | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | | 486 | | | 500 |
| astr.max.mögl.Beschattung | | | | 81 | | 258 | | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 57-NW - IP 57-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| 1 | 05:16 21:57 | 05:53 21:25 | 20:18 (WEA 2) 20:32 (WEA 2) | 06:43 20:22 | 07:32 19:12 | 07:26 17:06 | 08:18 16:25 |
| 2 | 05:17 21:56 | 05:54 21:23 | 20:16 (WEA 2) 20:33 (WEA 2) | 06:45 20:20 | 07:34 19:10 | 07:28 17:04 | 08:19 16:25 |
| 3 | 05:18 21:56 | 05:56 21:21 | 20:16 (WEA 2) 20:34 (WEA 2) | 06:46 20:18 | 07:36 19:08 | 07:30 17:02 | 08:20 16:24 |
| 4 | 05:18 21:56 | 05:58 21:20 | 20:14 (WEA 2) 20:34 (WEA 2) | 06:48 20:15 | 07:37 19:06 | 07:32 17:00 | 08:22 16:23 |
| 5 | 05:19 21:55 | 05:59 21:18 | 20:14 (WEA 2) 20:35 (WEA 2) | 06:49 20:13 | 07:39 19:03 | 07:34 16:59 | 08:23 16:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 20:13 (WEA 2) 20:35 (WEA 2) | 06:51 20:11 | 07:41 19:01 | 07:35 16:57 | 08:24 16:22 |
| 7 | 05:21 21:54 | 06:02 21:14 | 20:13 (WEA 2) 20:36 (WEA 2) | 06:53 20:09 | 07:42 18:59 | 07:37 16:55 | 08:26 16:22 |
| 8 | 05:22 21:53 | 06:04 21:12 | 20:13 (WEA 2) 20:35 (WEA 2) | 06:54 20:06 | 07:44 18:56 | 07:39 16:54 | 08:27 16:22 |
| 9 | 05:23 21:53 | 06:05 21:10 | 20:13 (WEA 2) 20:36 (WEA 2) | 06:56 20:04 | 07:46 18:54 | 07:41 16:52 | 08:28 16:21 |
| 10 | 05:24 21:52 | 06:07 21:09 | 20:12 (WEA 2) 20:35 (WEA 2) | 06:58 20:02 | 07:47 18:52 | 07:43 16:50 | 08:29 16:21 |
| 11 | 05:25 21:51 | 06:09 21:07 | 20:13 (WEA 2) 20:35 (WEA 2) | 06:59 19:59 | 07:49 18:50 | 07:44 16:49 | 08:30 16:21 |
| 12 | 05:26 21:50 | 06:10 21:05 | 20:13 (WEA 2) 20:34 (WEA 2) | 07:01 19:57 | 07:51 18:47 | 07:46 16:47 | 08:31 16:21 |
| 13 | 05:27 21:49 | 06:12 21:03 | 20:13 (WEA 2) 20:34 (WEA 2) | 07:03 19:55 | 07:53 18:45 | 07:48 16:46 | 08:32 16:21 |
| 14 | 05:28 21:48 | 06:13 21:01 | 20:13 (WEA 2) 20:32 (WEA 2) | 07:04 19:52 | 07:54 18:43 | 07:50 16:44 | 08:33 16:21 |
| 15 | 05:29 21:47 | 06:15 20:59 | 20:15 (WEA 2) 20:31 (WEA 2) | 07:06 19:50 | 07:56 18:41 | 07:51 16:43 | 08:34 16:21 |
| 16 | 05:30 21:46 | 06:17 20:57 | 20:15 (WEA 2) 20:28 (WEA 2) | 07:07 19:48 | 07:58 18:39 | 07:53 16:41 | 08:35 16:21 |
| 17 | 05:32 21:45 | 06:18 20:55 | 20:18 (WEA 2) 20:27 (WEA 2) | 07:09 19:45 | 08:00 18:36 | 07:55 16:40 | 08:36 16:21 |
| 18 | 05:33 21:44 | 06:20 20:53 | | 07:11 19:43 | 08:01 18:34 | 07:57 16:39 | 08:37 16:21 |
| 19 | 05:34 21:43 | 06:22 20:51 | | 07:12 19:41 | 08:03 18:32 | 07:58 16:37 | 08:37 16:22 |
| 20 | 05:36 21:42 | 06:23 20:48 | | 07:14 19:38 | 08:05 18:30 | 08:00 16:36 | 08:38 16:22 |
| 21 | 05:37 21:41 | 06:25 20:46 | | 07:16 19:36 | 08:07 18:28 | 08:02 16:35 | 08:39 16:23 |
| 22 | 05:38 21:39 | 06:27 20:44 | | 07:17 19:33 | 08:08 18:26 | 08:03 16:34 | 08:39 16:23 |
| 23 | 05:40 21:38 | 06:28 20:42 | | 07:19 19:31 | 08:10 18:24 | 08:05 16:33 | 08:40 16:24 |
| 24 | 05:41 21:37 | 06:30 20:40 | | 07:21 19:29 | 08:12 18:22 | 08:07 16:31 | 08:40 16:24 |
| 25 | 05:42 21:35 | 06:31 20:38 | | 07:22 19:26 | 08:14 17:20 | 08:08 16:30 | 08:41 16:25 |
| 26 | 05:44 21:34 | 06:33 20:36 | | 07:24 19:24 | 08:16 17:18 | 08:10 16:29 | 08:41 16:25 |
| 27 | 05:45 21:32 | 06:35 20:33 | | 07:26 19:22 | 08:17 17:16 | 08:12 16:29 | 08:41 16:26 |
| 28 | 05:47 21:31 | 06:36 20:31 | | 07:27 19:19 | 08:19 17:14 | 08:13 16:28 | 08:41 16:27 |
| 29 | 05:48 21:29 | 06:38 20:29 | | 07:29 19:17 | 08:21 17:12 | 08:15 16:27 | 08:41 16:28 |
| 30 | 05:50 21:28 | 20:21 (WEA 2) 20:28 (WEA 2) | 06:40 20:27 | 07:31 19:15 | 08:23 17:10 | 08:16 16:26 | 08:42 16:29 |
| 31 | 05:51 21:26 | 20:19 (WEA 2) 20:30 (WEA 2) | 06:41 20:24 | | 07:25 17:08 | | 08:42 16:30 |
| Sonnenscheinstunden | 503 | 454 | | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | 18 | 324 | | | | | |

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) |
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|
|--------------|-----------------------|-------------------------|----------------------|----------------------------------|------------------------------|---------------------------|----------------------------|

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 58-NW - IP 58-NW
Annahmen für Schattenwurfberechnung

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

Die Sonne scheint täglich von Sonnenauf- bis -untergang

Die Rotorfläche steht immer senkrecht zur Sonneneinstrahlung

Die Windenergieanlage/n ist/sind immer in Betrieb

| | Januar | Februar | März | April | May | June | July | August | September | October | November | December | | | | |
|---------------------------|--------|---------|-------|-------|---------------|---------------|---------------|--------|-----------|---------|---------------|---------------|-------|-------|-------|-------|
| 1 | 08:42 | 08:15 | 07:21 | 07:10 | 06:05 | 20:00 (WEA 2) | 05:19 | 05:16 | 05:53 | 06:43 | 07:32 | 07:26 | 08:18 | | | |
| | 16:31 | 17:19 | 18:11 | 20:05 | 20:57 | 22 | 20:22 (WEA 2) | 21:43 | 21:57 | 21:25 | 20:22 | 19:12 | 17:06 | 16:25 | | |
| 2 | 08:41 | 08:13 | 07:19 | 07:08 | 06:03 | 20:00 (WEA 2) | 05:18 | 05:17 | 05:54 | 06:45 | 07:34 | 07:28 | 08:19 | | | |
| | 16:32 | 17:21 | 18:13 | 20:07 | 20:58 | 22 | 20:22 (WEA 2) | 21:44 | 21:56 | 21:23 | 20:20 | 19:10 | 17:04 | 16:25 | | |
| 3 | 08:41 | 08:11 | 07:16 | 07:05 | 06:01 | 20:01 (WEA 2) | 05:18 | 05:18 | 05:56 | 06:46 | 07:36 | 07:30 | 08:20 | | | |
| | 16:33 | 17:23 | 18:15 | 20:09 | 21:00 | 21 | 20:22 (WEA 2) | 21:45 | 21:56 | 21:21 | 7 | 20:18 (WEA 2) | 20:18 | 19:08 | 17:02 | 16:24 |
| 4 | 08:41 | 08:10 | 07:14 | 07:03 | 05:59 | 20:01 (WEA 2) | 05:17 | 05:18 | 05:57 | 06:48 | 07:37 | 07:32 | 08:22 | | | |
| | 16:34 | 17:25 | 18:16 | 20:10 | 21:02 | 21 | 20:22 (WEA 2) | 21:46 | 21:56 | 21:19 | 12 | 20:27 (WEA 2) | 20:15 | 19:06 | 17:00 | 16:23 |
| 5 | 08:41 | 08:08 | 07:12 | 07:01 | 05:57 | 20:01 (WEA 2) | 05:16 | 05:19 | 05:59 | 06:49 | 07:39 | 07:34 | 08:23 | | | |
| | 16:35 | 17:26 | 18:18 | 20:12 | 21:03 | 20 | 20:21 (WEA 2) | 21:47 | 21:55 | 21:18 | 15 | 20:29 (WEA 2) | 20:13 | 19:03 | 16:59 | 16:23 |
| 6 | 08:41 | 08:06 | 07:10 | 06:58 | 05:55 | 20:02 (WEA 2) | 05:15 | 05:20 | 06:01 | 06:51 | 07:41 | 07:35 | 08:24 | | | |
| | 16:37 | 17:28 | 18:20 | 20:14 | 21:05 | 18 | 20:20 (WEA 2) | 21:48 | 21:55 | 21:16 | 17 | 20:29 (WEA 2) | 20:11 | 19:01 | 16:57 | 16:22 |
| 7 | 08:40 | 08:05 | 07:08 | 06:56 | 05:54 | 20:03 (WEA 2) | 05:15 | 05:21 | 06:02 | 06:52 | 07:42 | 07:37 | 08:26 | | | |
| | 16:38 | 17:30 | 18:22 | 20:16 | 21:07 | 16 | 20:19 (WEA 2) | 21:49 | 21:54 | 21:14 | 18 | 20:30 (WEA 2) | 20:09 | 18:59 | 16:55 | 16:22 |
| 8 | 08:40 | 08:03 | 07:05 | 06:54 | 05:52 | 20:04 (WEA 2) | 05:14 | 05:22 | 06:04 | 06:54 | 07:44 | 07:39 | 08:27 | | | |
| | 16:39 | 17:32 | 18:24 | 20:17 | 21:08 | 14 | 20:18 (WEA 2) | 21:50 | 21:53 | 21:12 | 20 | 20:30 (WEA 2) | 20:06 | 18:56 | 16:54 | 16:22 |
| 9 | 08:39 | 08:01 | 07:03 | 06:52 | 05:50 | 20:05 (WEA 2) | 05:14 | 05:23 | 06:05 | 06:56 | 07:46 | 07:41 | 08:28 | | | |
| | 16:41 | 17:34 | 18:25 | 20:19 | 21:10 | 11 | 20:16 (WEA 2) | 21:51 | 21:53 | 21:10 | 21 | 20:30 (WEA 2) | 20:04 | 18:54 | 16:52 | 16:21 |
| 10 | 08:39 | 07:59 | 07:01 | 06:49 | 05:48 | 20:08 (WEA 2) | 05:13 | 05:24 | 06:07 | 06:58 | 07:47 | 07:43 | 08:29 | | | |
| | 16:42 | 17:36 | 18:27 | 20:21 | 21:11 | 6 | 20:14 (WEA 2) | 21:51 | 21:52 | 21:09 | 22 | 20:31 (WEA 2) | 20:02 | 18:52 | 16:50 | 16:21 |
| 11 | 08:38 | 07:57 | 06:58 | 06:47 | 05:47 | | | 05:13 | 05:25 | 06:09 | 20:30 (WEA 2) | 06:59 | 07:49 | 07:44 | 08:30 | |
| | 16:43 | 17:38 | 18:29 | 20:22 | 21:13 | | | 21:52 | 21:51 | 21:07 | 22 | 20:32 (WEA 2) | 19:59 | 18:50 | 16:49 | 16:21 |
| 12 | 08:37 | 07:56 | 06:56 | 06:45 | 05:45 | | | 05:13 | 05:26 | 06:10 | 20:29 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 | |
| | 16:45 | 17:40 | 18:31 | 20:24 | 21:15 | | | 21:53 | 21:50 | 21:05 | 22 | 20:31 (WEA 2) | 19:57 | 18:47 | 16:47 | 16:21 |
| 13 | 08:37 | 07:54 | 06:54 | 06:43 | 05:43 | | | 05:12 | 05:27 | 06:12 | 20:29 (WEA 2) | 07:03 | 07:53 | 07:48 | 08:32 | |
| | 16:46 | 17:41 | 18:32 | 20:26 | 21:16 | | | 21:53 | 21:49 | 21:03 | 22 | 20:31 (WEA 2) | 19:55 | 18:45 | 16:46 | 16:21 |
| 14 | 08:36 | 07:52 | 06:52 | 06:40 | 05:42 | | | 05:12 | 05:28 | 06:13 | 20:29 (WEA 2) | 07:04 | 07:54 | 07:50 | 08:33 | |
| | 16:48 | 17:43 | 18:34 | 20:28 | 21:18 | | | 21:54 | 21:48 | 21:01 | 21 | 20:30 (WEA 2) | 19:52 | 18:43 | 16:44 | 16:21 |
| 15 | 08:35 | 07:50 | 06:49 | 06:38 | 05:40 | | | 05:12 | 05:29 | 06:15 | 20:30 (WEA 2) | 07:06 | 07:56 | 07:51 | 08:34 | |
| | 16:50 | 17:45 | 18:36 | 20:29 | 21:19 | | | 21:55 | 21:47 | 20:59 | 20 | 20:30 (WEA 2) | 19:50 | 18:41 | 16:43 | 16:21 |
| 16 | 08:34 | 07:48 | 06:47 | 06:36 | 05:39 | | | 05:12 | 05:30 | 06:17 | 20:29 (WEA 2) | 07:07 | 07:58 | 07:53 | 08:35 | |
| | 16:51 | 17:47 | 18:38 | 20:31 | 21:21 | | | 21:55 | 21:46 | 20:57 | 19 | 20:28 (WEA 2) | 19:48 | 18:39 | 16:41 | 16:21 |
| 17 | 08:33 | 07:46 | 06:45 | 06:34 | 05:37 | | | 05:12 | 05:32 | 06:18 | 20:11 (WEA 2) | 07:09 | 08:00 | 07:55 | 08:36 | |
| | 16:53 | 17:49 | 18:39 | 20:33 | 21:22 | | | 21:56 | 21:45 | 20:55 | 16 | 20:27 (WEA 2) | 19:45 | 18:36 | 16:40 | 16:21 |
| 18 | 08:32 | 07:44 | 06:42 | 06:32 | 05:36 | | | 05:12 | 05:33 | 06:20 | 20:11 (WEA 2) | 07:11 | 08:01 | 07:57 | 08:37 | |
| | 16:54 | 17:51 | 18:41 | 20:34 | 21:24 | | | 21:56 | 21:44 | 20:53 | 13 | 20:24 (WEA 2) | 19:43 | 18:34 | 16:39 | 16:21 |
| 19 | 08:31 | 07:42 | 06:40 | 06:29 | 05:34 | | | 05:12 | 05:34 | 06:22 | 20:13 (WEA 2) | 07:12 | 08:03 | 07:58 | 08:37 | |
| | 16:56 | 17:53 | 18:43 | 20:36 | 21:25 | | | 21:56 | 21:43 | 20:51 | 10 | 20:23 (WEA 2) | 19:41 | 18:32 | 16:37 | 16:22 |
| 20 | 08:30 | 07:40 | 06:38 | 06:27 | 05:33 | | | 05:12 | 05:36 | 06:23 | 20:15 (WEA 2) | 07:14 | 08:05 | 08:00 | 08:38 | |
| | 16:58 | 17:54 | 18:45 | 20:38 | 21:27 | | | 21:57 | 21:42 | 20:48 | 5 | 20:20 (WEA 2) | 19:38 | 18:30 | 16:36 | 16:22 |
| 21 | 08:29 | 07:38 | 06:35 | 06:25 | 05:31 | | | 05:12 | 05:37 | 06:25 | | 07:16 | 08:07 | 08:02 | 08:39 | |
| | 16:59 | 17:56 | 18:46 | 20:40 | 21:28 | | | 21:57 | 21:41 | 20:46 | | 19:36 | 18:28 | 16:35 | 16:23 | |
| 22 | 08:28 | 07:36 | 06:33 | 06:23 | 05:30 | | | 05:12 | 05:38 | 06:27 | | 07:17 | 08:08 | 08:03 | 08:39 | |
| | 17:01 | 17:58 | 18:48 | 20:41 | 21:30 | | | 21:57 | 21:39 | 20:44 | | 19:33 | 18:26 | 16:34 | 16:23 | |
| 23 | 08:27 | 07:34 | 06:31 | 06:21 | 20:10 (WEA 2) | | | 05:12 | 05:40 | 06:28 | | 07:19 | 08:10 | 08:05 | 08:40 | |
| | 17:03 | 18:00 | 18:50 | 20:43 | 6 | 20:16 (WEA 2) | | 21:57 | 21:38 | 20:42 | | 19:31 | 18:24 | 16:33 | 16:23 | |
| 24 | 08:26 | 07:32 | 06:28 | 06:19 | 20:07 (WEA 2) | | | 05:13 | 05:41 | 06:30 | | 07:21 | 08:12 | 08:07 | 08:40 | |
| | 17:05 | 18:02 | 18:52 | 20:45 | 10 | 20:17 (WEA 2) | | 21:57 | 21:37 | 20:40 | | 19:29 | 18:22 | 16:31 | 16:24 | |
| 25 | 08:24 | 07:29 | 06:26 | 06:17 | 20:05 (WEA 2) | | | 05:13 | 05:42 | 06:31 | | 07:22 | 07:14 | 08:08 | 08:41 | |
| | 17:06 | 18:04 | 18:53 | 20:46 | 14 | 20:19 (WEA 2) | | 21:57 | 21:35 | 20:38 | | 19:26 | 17:20 | 16:30 | 16:25 | |
| 26 | 08:23 | 07:27 | 06:24 | 06:15 | 20:04 (WEA 2) | | | 05:13 | 05:44 | 06:33 | | 07:24 | 07:16 | 08:10 | 08:41 | |
| | 17:08 | 18:05 | 18:55 | 20:48 | 16 | 20:20 (WEA 2) | | 21:57 | 21:34 | 20:36 | | 19:24 | 17:18 | 16:29 | 16:25 | |
| 27 | 08:22 | 07:25 | 06:21 | 06:13 | 20:03 (WEA 2) | | | 05:14 | 05:45 | 06:35 | | 07:26 | 07:17 | 08:12 | 08:41 | |
| | 17:10 | 18:07 | 18:57 | 20:50 | 19 | 20:22 (WEA 2) | | 21:57 | 21:32 | 20:33 | | 19:22 | 17:16 | 16:29 | 16:26 | |
| 28 | 08:20 | 07:23 | 06:19 | 06:11 | 20:02 (WEA 2) | | | 05:14 | 05:47 | 06:36 | | 07:27 | 07:19 | 08:13 | 08:41 | |
| | 17:12 | 18:09 | 18:58 | 20:51 | 21 | 20:23 (WEA 2) | | 21:57 | 21:31 | 20:31 | | 19:19 | 17:14 | 16:28 | 16:27 | |
| 29 | 08:19 | | 07:17 | 06:09 | 20:01 (WEA 2) | | | 05:15 | 05:48 | 06:38 | | 07:29 | 07:21 | 08:15 | 08:41 | |
| | 17:14 | | 20:00 | 20:53 | 22 | 20:23 (WEA 2) | | 21:57 | 21:29 | 20:29 | | 19:17 | 17:12 | 16:27 | 16:28 | |
| 30 | 08:18 | | 07:15 | 06:07 | 20:01 (WEA 2) | | | 05:15 | 05:50 | 06:40 | | 07:31 | 07:23 | 08:16 | 08:42 | |
| | 17:15 | | 20:02 | 20:55 | 22 | 20:23 (WEA 2) | | 21:57 | 21:28 | 20:27 | | 19:15 | 17:10 | 16:26 | 16:29 | |
| 31 | 08:16 | | 07:12 | | 05:20 | | | | 05:51 | 06:41 | | | 07:25 | | 08:42 | |
| | 17:17 | | 20:04 | | 21:41 | | | | 21:26 | 20:24 | | | 17:08 | | 16:30 | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | 486 | | | 500 | 503 | 454 | 302 | 381 | 331 | 266 | 243 | |
| astr.max.mögl.Beschattung | | | | 130 | 171 | | | | | | | | | | | |

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) | Minuten mit Schatten | Zeitpunkt (SS:MM) Schatteneende (WEA mit letztem Schatten) |
| | Sonnenuntergang (SS:MM) | | | |



SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 59-NW - IP 59-NW
Annahmen für Schattenwurfberechnung

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

| | Januar | Februar | März | April | | Mai | | Juni |
|---------------------------|----------------|----------------|----------------|----------------|----|--------------------------------|----|------------------------|
| 1 | 08:42 16:31 | 08:15 17:19 | 07:21 18:11 | 07:10 20:05 | | 06:05 20:57 | 20 | 20:07 (WEA 2) 21:43 |
| 2 | 08:41 16:32 | 08:13 17:21 | 07:19 18:13 | 07:08 20:07 | | 06:03 20:58 | 21 | 20:06 (WEA 2) 21:44 |
| 3 | 08:41 16:33 | 08:11 17:23 | 07:16 18:15 | 07:05 20:09 | | 06:01 21:00 | 22 | 20:06 (WEA 2) 21:45 |
| 4 | 08:41 16:34 | 08:10 17:25 | 07:14 18:16 | 07:03 20:10 | | 05:59 21:02 | 22 | 20:06 (WEA 2) 21:46 |
| 5 | 08:41 16:35 | 08:08 17:26 | 07:12 18:18 | 07:01 20:12 | | 05:57 21:03 | 21 | 20:06 (WEA 2) 21:47 |
| 6 | 08:41 16:37 | 08:06 17:28 | 07:10 18:20 | 06:58 20:14 | | 05:55 21:05 | 22 | 20:05 (WEA 2) 21:48 |
| 7 | 08:40 16:38 | 08:05 17:30 | 07:08 18:22 | 06:56 20:16 | | 05:54 21:07 | 21 | 20:06 (WEA 2) 21:49 |
| 8 | 08:40 16:39 | 08:03 17:32 | 07:05 18:24 | 06:54 20:17 | | 05:52 21:08 | 20 | 20:06 (WEA 2) 21:50 |
| 9 | 08:39 16:41 | 08:01 17:34 | 07:03 18:25 | 06:52 20:19 | | 05:50 21:10 | 18 | 20:07 (WEA 2) 21:51 |
| 10 | 08:39 16:42 | 07:59 17:36 | 07:01 18:27 | 06:49 20:21 | | 05:48 21:11 | 17 | 20:08 (WEA 2) 21:51 |
| 11 | 08:38 16:43 | 07:57 17:38 | 06:58 18:29 | 06:47 20:22 | | 05:47 21:13 | 16 | 20:08 (WEA 2) 21:52 |
| 12 | 08:37 16:45 | 07:56 17:40 | 06:56 18:31 | 06:45 20:24 | | 05:45 21:15 | 13 | 20:10 (WEA 2) 21:53 |
| 13 | 08:37 16:46 | 07:54 17:41 | 06:54 18:32 | 06:43 20:26 | | 05:43 21:16 | 9 | 20:12 (WEA 2) 21:53 |
| 14 | 08:36 16:48 | 07:52 17:43 | 06:52 18:34 | 06:40 20:28 | | 05:42 21:18 | | 05:12 21:54 |
| 15 | 08:35 16:50 | 07:50 17:45 | 06:49 18:36 | 06:38 20:29 | | 05:40 21:19 | | 05:12 21:55 |
| 16 | 08:34 16:51 | 07:48 17:47 | 06:47 18:38 | 06:36 20:31 | | 05:39 21:21 | | 05:12 21:55 |
| 17 | 08:33 16:53 | 07:46 17:49 | 06:45 18:39 | 06:34 20:33 | | 05:37 21:22 | | 05:12 21:56 |
| 18 | 08:32 16:54 | 07:44 17:51 | 06:42 18:41 | 06:32 20:34 | | 05:36 21:24 | | 05:12 21:56 |
| 19 | 08:31 16:56 | 07:42 17:53 | 06:40 18:43 | 06:29 20:36 | | 05:34 21:25 | | 05:12 21:56 |
| 20 | 08:30 16:58 | 07:40 17:54 | 06:38 18:45 | 06:27 20:38 | | 05:33 21:27 | | 05:12 21:57 |
| 21 | 08:29 16:59 | 07:38 17:56 | 06:35 18:46 | 06:25 20:40 | | 05:31 21:28 | | 05:12 21:57 |
| 22 | 08:28 17:01 | 07:36 17:58 | 06:33 18:48 | 06:23 20:41 | | 05:30 21:30 | | 05:12 21:57 |
| 23 | 08:27 17:03 | 07:34 18:00 | 06:31 18:50 | 06:21 20:43 | | 05:29 21:31 | | 05:12 21:57 |
| 24 | 08:26 17:05 | 07:32 18:02 | 06:28 18:52 | 06:19 20:45 | | 05:28 21:33 | | 05:13 21:57 |
| 25 | 08:24 17:06 | 07:29 18:04 | 06:26 18:53 | 06:17 20:46 | | 05:26 21:34 | | 05:13 21:57 |
| 26 | 08:23 17:08 | 07:27 18:05 | 06:24 18:55 | 06:15 20:48 | 5 | 20:15 (WEA 2) 20:20 (WEA 2) | | 05:13 21:57 |
| 27 | 08:22 17:10 | 07:25 18:07 | 06:21 18:57 | 06:13 20:50 | 10 | 20:12 (WEA 2) 20:22 (WEA 2) | | 05:14 21:57 |
| 28 | 08:20 17:12 | 07:23 18:09 | 06:19 18:58 | 06:11 20:51 | 13 | 20:10 (WEA 2) 20:23 (WEA 2) | | 05:14 21:57 |
| 29 | 08:19 17:14 | | 07:17 20:00 | 06:09 20:53 | 16 | 20:09 (WEA 2) 20:25 (WEA 2) | | 05:15 21:57 |
| 30 | 08:18 17:15 | | 07:15 20:02 | 06:07 20:55 | 18 | 20:08 (WEA 2) 20:26 (WEA 2) | | 05:15 21:57 |
| 31 | 08:16 17:17 | | 07:12 20:04 | | | 05:20 21:41 | | |
| Sonnenscheinstunden | 258 | 277 | 367 | 416 | | 486 | | 500 |
| astr.max.mögl.Beschattung | | | | 62 | | 242 | | |

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

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

Projekt:

WP Luentener Mark

Lizenzierter Anwender:

WWK Partnerschaft für Umweltplanung

Molkenstraße 5

DE-48231 Warendorf

02581 93 660

Reiner Winterkamp / r.winterkamp@wwk-umweltplanung.de

Berechnet:

07.12.2023 09:59/4.0.424

SHADOW - Kalender

Berechnung: Immissionspunktberechnung Zusatzbelastung durch WEA 2 Schattenrezeptor: IP 59-NW - IP 59-NW
Annahmen für Schattenwurfberechnung

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

| | July | August | September | Oktober | November | Dezember | |
|---------------------------|----------------|--------------------------------|------------------|---------|----------|----------|-------|
| 1 | 05:16 21:57 | 05:53 21:25 | 20:20 (WEA 2) | 06:43 | 07:32 | 07:26 | 08:18 |
| 2 | 05:17 21:56 | 05:54 21:23 | 14 20:18 (WEA 2) | 06:45 | 07:34 | 07:28 | 08:19 |
| 3 | 05:18 21:56 | 05:56 21:21 | 16 20:34 (WEA 2) | 06:46 | 07:36 | 07:30 | 08:20 |
| 4 | 05:18 21:56 | 05:57 21:19 | 18 20:36 (WEA 2) | 06:48 | 07:37 | 07:32 | 08:22 |
| 5 | 05:19 21:55 | 05:59 21:18 | 19 20:36 (WEA 2) | 06:51 | 07:39 | 07:34 | 08:23 |
| 6 | 05:20 21:55 | 06:01 21:16 | 20 20:37 (WEA 2) | 06:51 | 07:41 | 07:35 | 08:24 |
| 7 | 05:21 21:54 | 06:02 21:14 | 21 20:37 (WEA 2) | 06:51 | 07:41 | 07:35 | 08:24 |
| 8 | 05:22 21:53 | 06:04 21:12 | 22 20:37 (WEA 2) | 06:54 | 07:42 | 07:37 | 08:26 |
| 9 | 05:23 21:53 | 06:05 21:10 | 21 20:37 (WEA 2) | 06:53 | 07:42 | 07:37 | 08:26 |
| 10 | 05:24 21:52 | 06:07 21:09 | 22 20:37 (WEA 2) | 06:56 | 07:44 | 07:39 | 08:27 |
| 11 | 05:25 21:51 | 06:09 21:07 | 22 20:37 (WEA 2) | 06:56 | 07:46 | 07:41 | 08:28 |
| 12 | 05:26 21:50 | 06:10 21:05 | 22 20:37 (WEA 2) | 06:58 | 07:47 | 07:43 | 08:29 |
| 13 | 05:27 21:49 | 06:12 21:03 | 21 20:37 (WEA 2) | 06:59 | 07:49 | 07:44 | 08:30 |
| 14 | 05:28 21:48 | 06:13 21:01 | 21 20:37 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 |
| 15 | 05:29 21:47 | 06:15 20:59 | 21 20:36 (WEA 2) | 07:01 | 07:51 | 07:46 | 08:31 |
| 16 | 05:30 21:46 | 06:17 20:57 | 13 20:31 (WEA 2) | 07:02 | 07:52 | 07:47 | 08:32 |
| 17 | 05:32 21:45 | 06:18 20:55 | 9 20:28 (WEA 2) | 07:03 | 07:53 | 07:48 | 08:32 |
| 18 | 05:33 21:44 | 06:20 20:53 | 5 20:27 (WEA 2) | 07:04 | 07:54 | 07:50 | 08:33 |
| 19 | 05:34 21:43 | 06:22 20:51 | 18 20:34 (WEA 2) | 07:05 | 07:55 | 07:51 | 08:34 |
| 20 | 05:36 21:42 | 06:23 20:48 | 16 20:32 (WEA 2) | 07:06 | 07:56 | 07:52 | 08:34 |
| 21 | 05:37 21:41 | 06:25 20:46 | 13 20:31 (WEA 2) | 07:07 | 07:57 | 07:53 | 08:35 |
| 22 | 05:38 21:39 | 06:27 20:44 | 9 20:28 (WEA 2) | 07:08 | 07:58 | 07:54 | 08:35 |
| 23 | 05:40 21:38 | 06:28 20:42 | 5 20:27 (WEA 2) | 07:09 | 07:59 | 07:55 | 08:36 |
| 24 | 05:41 21:37 | 06:30 20:40 | 9 20:28 (WEA 2) | 07:10 | 08:00 | 07:56 | 08:36 |
| 25 | 05:42 21:35 | 06:31 20:38 | 5 20:27 (WEA 2) | 07:11 | 08:01 | 07:57 | 08:37 |
| 26 | 05:44 21:34 | 06:33 20:36 | 18 20:34 (WEA 2) | 07:12 | 08:02 | 07:58 | 08:37 |
| 27 | 05:45 21:32 | 06:35 20:33 | 16 20:32 (WEA 2) | 07:13 | 08:03 | 07:59 | 08:38 |
| 28 | 05:47 21:31 | 06:36 20:31 | 18 20:34 (WEA 2) | 07:14 | 08:04 | 08:00 | 08:38 |
| 29 | 05:48 21:29 | 06:38 20:29 | 9 20:28 (WEA 2) | 07:15 | 08:05 | 08:01 | 08:39 |
| 30 | 05:50 21:28 | 20:24 (WEA 2) 20:30 (WEA 2) | 6 20:24 (WEA 2) | 07:16 | 08:06 | 08:02 | 08:39 |
| 31 | 05:51 21:26 | 20:21 (WEA 2) 20:24 (WEA 2) | 11 20:32 (WEA 2) | 07:17 | 08:07 | 08:03 | 08:39 |
| Sonnenscheinstunden | 503 | 454 | | 381 | 331 | 266 | 243 |
| astr.max.mögl.Beschattung | 17 | 298 | | | | | |

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) |

