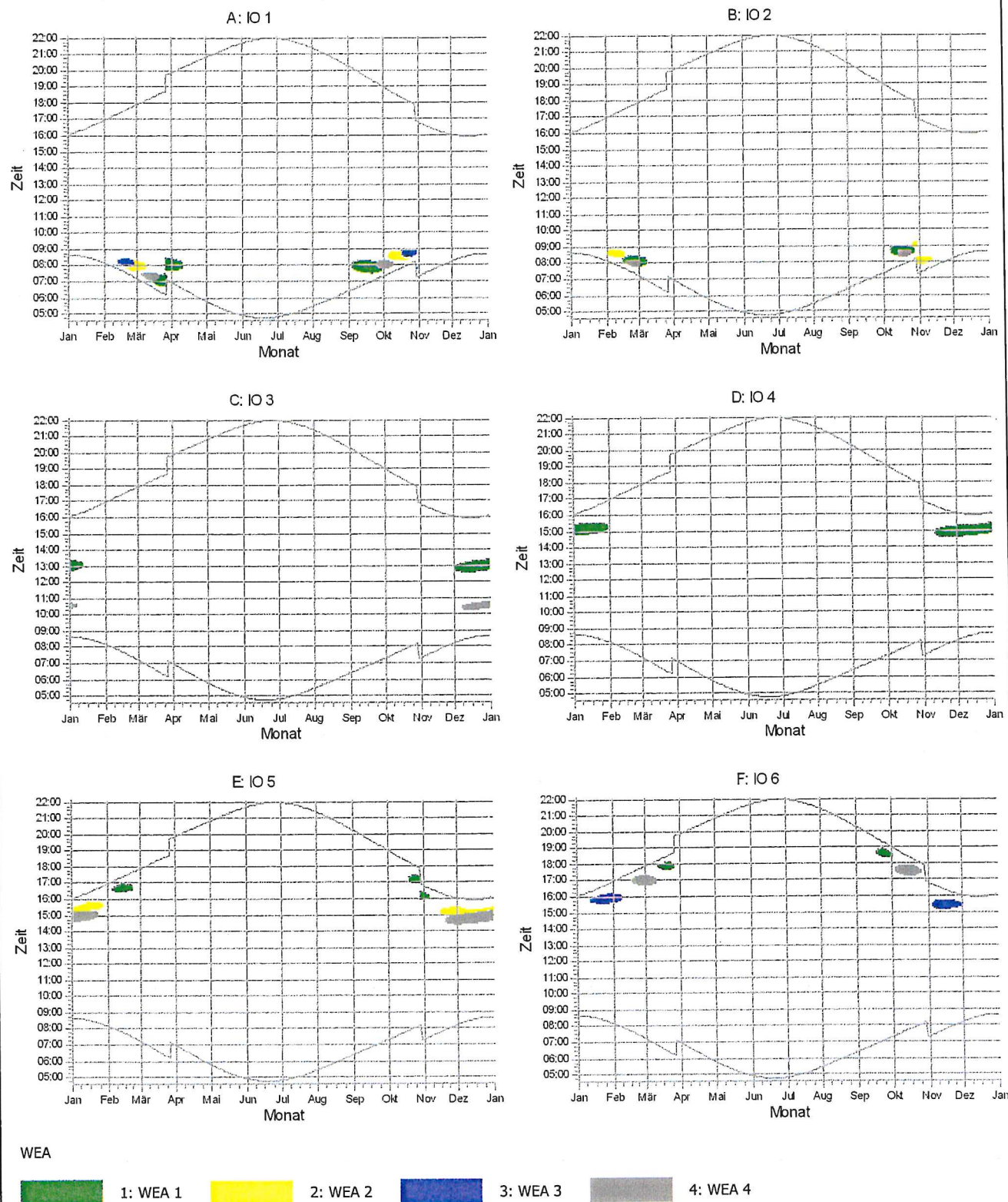


SHADOW - Grafischer Kalender

Berechnung: Zusatzbelastung

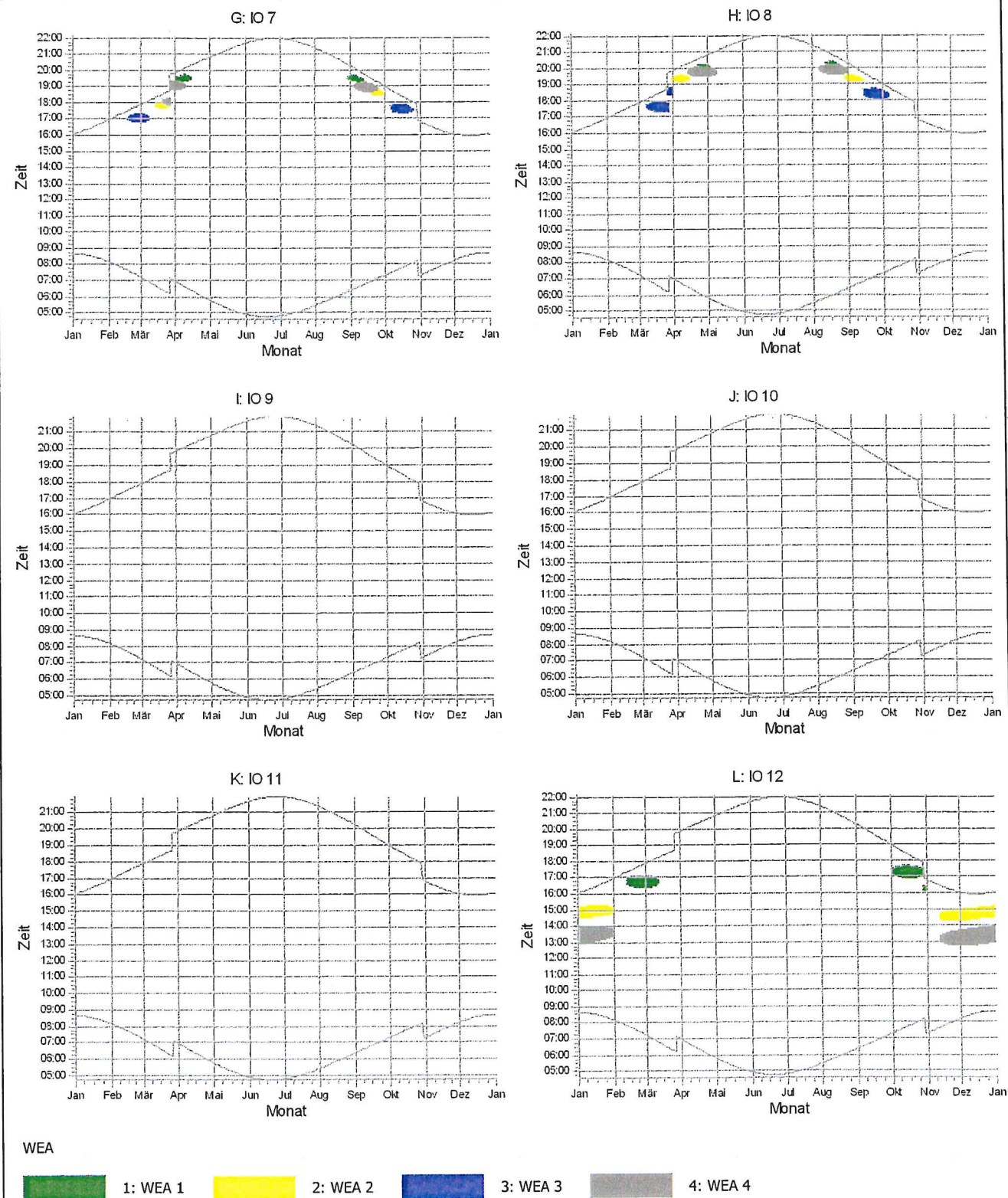


WEA

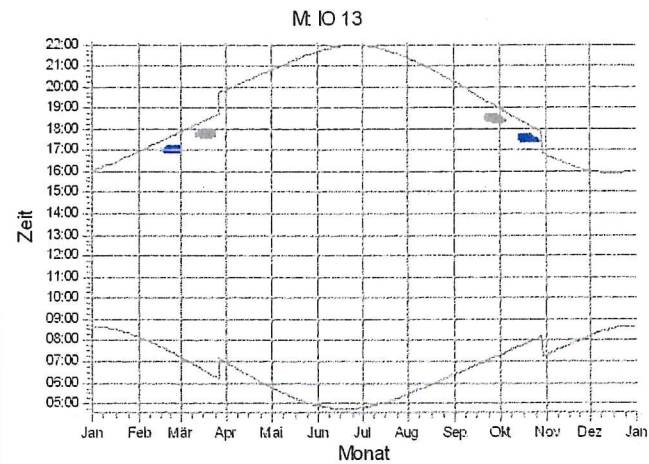
1: WEA 1 2: WEA 2 3: WEA 3 4: WEA 4

SHADOW - Grafischer Kalender

Berechnung: Zusatzbelastung



SHADOW - Grafischer Kalender
Berechnung: Zusatzbelastung



WEA

3: WEA 3 4: WEA 4

SHADOW - Kalender pro WEA

Berechnung: Zusatzbelastung WEA: 1 - WEA 1

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2022
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	08:40 14:52-15:23/31 16:05 12:48-13:18/30	08:10 16:56	07:12 16:25-17:05/40 17:53 07:53-08:21/28	06:55 07:45-08:20/35 19:53	05:45 19:57-20:05/8 20:49	04:54 21:41
2	08:40 14:51-15:23/32 16:06 12:48-13:17/29	08:08 16:58	07:09 16:25-17:03/38 17:55 07:53-08:20/27	06:53 19:29-19:30/1 19:55 07:46-08:19/33	05:43 20:51	04:53 21:42
3	08:40 14:52-15:24/32 16:07 12:49-13:17/28	08:06 17:00	07:07 16:26-17:03/37 17:57 07:54-08:19/25	06:50 19:26-19:31/5 19:57 07:46-08:18/32	05:41 20:53	04:52 21:43
4	08:39 14:52-15:24/32 16:08 12:50-13:17/27	08:04 17:02	07:04 16:26-17:02/36 17:59 07:55-08:17/22	06:48 19:25-19:33/8 19:58 07:47-08:17/30	05:39 20:55	04:51 21:44
5	08:39 14:53-15:25/32 16:09 12:52-13:17/25	08:03 17:04	07:02 16:27-17:01/34 18:01 07:56-08:16/20	06:46 19:24-19:35/11 20:00 07:48-08:15/27	05:37 20:57	04:50 21:46
6	08:39 14:52-15:25/33 16:11 12:53-13:16/23	08:01 16:37-16:38/1 17:06	07:00 16:27-17:00/33 18:03 07:58-08:13/15	06:43 19:24-19:37/13 20:02 07:49-08:13/24	05:35 20:59	04:49 21:47
7	08:38 14:53-15:27/34 16:12 12:55-13:16/21	07:59 16:36-16:40/4 17:09	06:57 16:29-16:59/30 18:05 08:01-08:10/9	06:41 19:24-19:39/15 20:04 07:51-08:11/20	05:33 21:00	04:49 21:48
8	08:38 14:53-15:27/34 16:13 12:56-13:15/19	07:57 16:33-16:41/8 17:11	06:55 16:30-16:56/26 18:07	06:38 19:23-19:40/17 20:06 07:53-08:07/14	05:31 21:02	04:48 21:49
9	08:37 14:54-15:27/33 16:15 12:58-13:14/16	07:55 16:32-16:44/12 17:13	06:52 16:32-16:55/23 18:09	06:36 19:23-19:42/19 20:08	05:29 21:04	04:47 21:50
10	08:37 14:54-15:27/33 16:16 13:00-13:12/12	07:53 16:32-16:46/14 17:15	06:50 16:34-16:51/17 18:11	06:33 19:23-19:40/17 20:10	05:27 21:06	04:47 21:51
11	08:36 14:54-15:28/34 16:18 13:04-13:09/5	07:51 16:31-16:48/17 17:17	06:47 16:39-16:47/8 18:13	06:31 19:24-19:39/15 20:12	05:25 21:08	04:46 21:51
12	08:35 14:54-15:28/34 16:19	07:49 16:31-16:51/20 17:19	06:45 18:15	06:28 19:26-19:38/12 20:14	05:23 21:09	04:46 21:52
13	08:34 14:55-15:29/34 16:21	07:47 16:31-16:53/22 17:21	06:43 17:51-17:52/1 18:17	06:26 19:28-19:34/6 20:15	05:21 21:11	04:45 21:53
14	08:33 14:55-15:29/34 16:23	07:45 16:31-16:55/24 17:23	06:40 17:48-17:54/6 18:19	06:24 20:17	05:19 21:13	04:45 21:54
15	08:33 14:56-15:29/33 16:24	07:43 16:31-16:57/26 17:25	06:38 17:47-17:56/9 18:21	06:21 20:19	05:18 21:15	04:45 21:54
16	08:32 14:56-15:30/34 16:26	07:41 16:31-16:59/28 17:27	06:35 17:46-17:57/11 08:09-08:11/2	06:19 20:21	05:16 21:16	04:45 21:55
17	08:31 14:57-15:30/33 16:28	07:39 16:31-17:00/29 17:29	06:33 17:45-18:00/15 08:07-08:15/8	06:16 20:23	05:14 21:18	04:45 21:55
18	08:29 14:57-15:30/33 16:30	07:36 16:30-17:02/32 17:31	06:30 17:44-18:01/17 08:05-08:18/13	06:14 19:58-19:59/1 20:25	05:13 21:20	04:44 21:56
19	08:28 14:58-15:30/32 16:31	07:34 16:28-17:02/34 17:33	06:28 17:44-18:04/20 08:02-08:18/16	06:12 19:55-20:00/5 20:27	05:11 21:21	04:44 21:56
20	08:27 14:59-15:31/32 16:33	07:32 16:28-17:03/35 17:35	06:25 17:44-18:04/20 08:00-08:20/20	06:09 19:54-20:02/8 20:29	05:09 21:23	04:44 21:57
21	08:26 14:59-15:30/31 16:35	07:30 16:27-17:04/37 17:37	06:23 17:44-18:04/20 07:58-08:21/23	06:07 19:53-20:04/11 20:31	05:08 21:25	04:45 21:57
22	08:25 15:01-15:30/29 16:37	07:28 16:26-17:04/38 17:39	06:20 17:44-18:03/19 07:55-08:21/26	06:05 19:53-20:06/13 20:32	05:06 21:26	04:45 21:57
23	08:23 15:01-15:29/28 16:39	07:25 16:26-17:05/39 17:41	06:18 17:45-18:02/17 07:54-08:22/28	06:03 19:52-20:08/16 20:34	05:05 21:28	04:45 21:57
24	08:22 15:02-15:29/27 16:41	07:23 16:26-17:05/39 17:43	06:15 17:46-18:00/14 07:54-08:22/28	06:00 19:51-20:09/18 20:36	05:03 21:29	04:45 21:57
25	08:21 15:03-15:29/26 16:43	07:21 16:25-17:05/40 17:45	06:13 17:49-17:57/8 07:53-08:22/29	05:58 19:51-20:11/20 20:38	05:02 21:31	04:46 21:58
26	08:19 15:04-15:28/24 16:44	07:18 16:25-17:05/40 17:47	06:10 06:46-07:23/37 07:53-08:22/29	05:56 19:52-20:11/19 20:40	05:01 21:32	04:46 21:58
27	08:18 15:06-15:27/21 16:46	07:16 16:24-17:04/40 17:49	07:08 07:46-08:23/37 07:53-08:22/29	05:54 19:52-20:11/19 20:42	04:59 21:34	04:46 21:57
28	08:16 15:08-15:26/18 16:48	07:14 16:25-17:05/40 17:51	07:05 07:45-08:23/38 07:53-08:21/28	05:51 19:53-20:10/17 20:44	04:58 21:35	04:47 21:57
29	08:15 15:10-15:24/14 16:50		07:03 07:45-08:23/38 19:47	05:49 19:54-20:09/15 20:46	04:57 21:37	04:47 21:57
30	08:13 15:14-15:20/6 16:52		07:00 07:45-08:22/37 19:49	05:47 19:55-20:07/12 20:47	04:56 21:38	04:48 21:57
31	08:11 16:54		06:58 07:45-08:21/36 19:51		04:55 21:39	
Sonnenscheinstunden	247	271	365	420	495	513
Anzahl Minuten mit Schatten	1118	898	1143	528	8	0

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

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